COMBAT AIRCRAFT 124

Jonathan Falconer

SHORT STIRLING UNITS OF WORLD WAR 2

SERIES EDITOR TONY HOLMES

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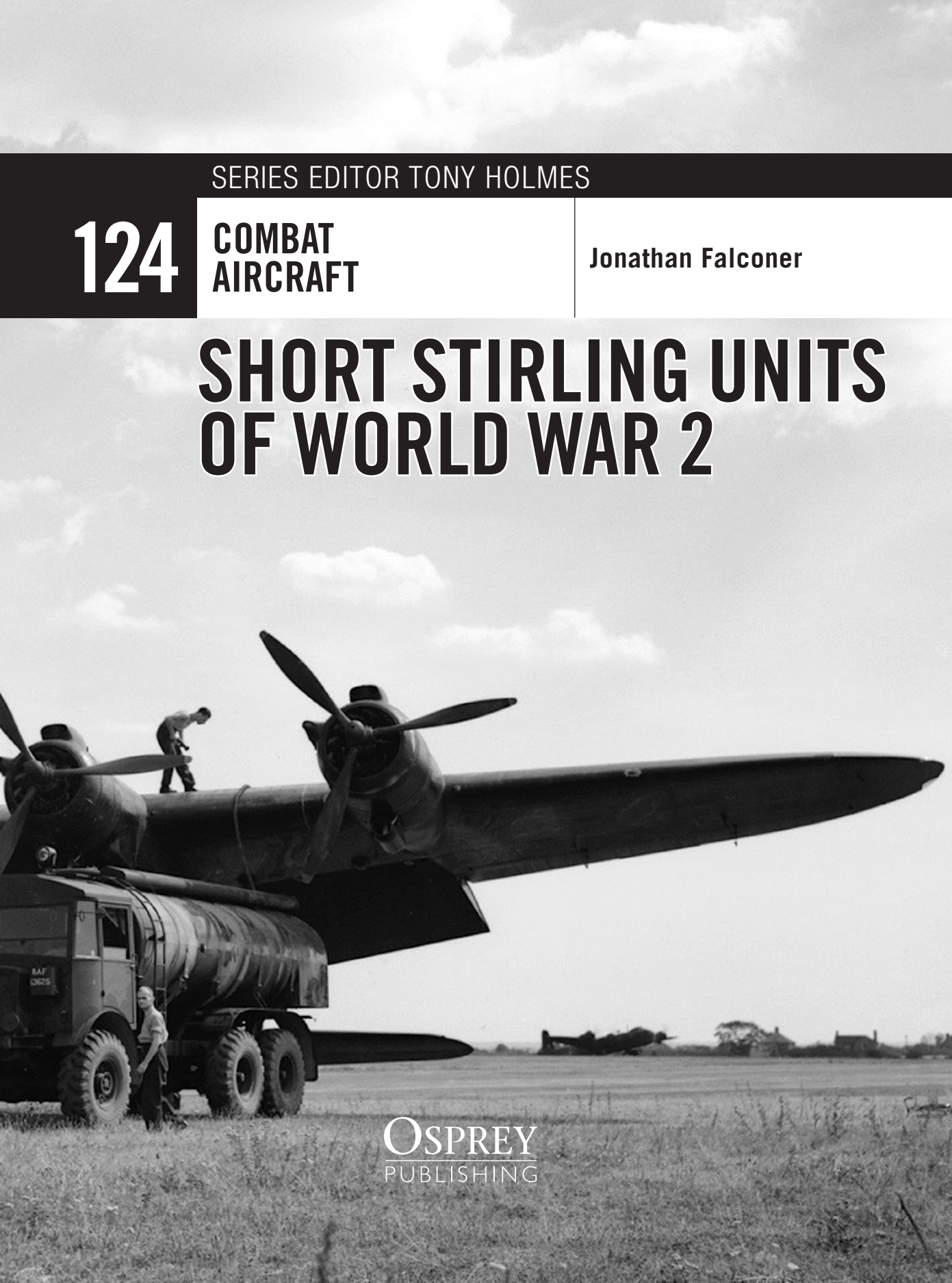

OSPREY PUBLISHING

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INTRODUCTION

Big, ungainly-looking and with its cockpit towering 22 ft 9 in above the ground, the Short Stirling was Britain's first four-engined monoplane heavy bomber to fly, entering service with the RAF in 1940. However, its lacklustre performance with Bomber Command attracted the ire of Air Chief Marshal Sir Arthur 'Bomber' Harris. It is difficult to decide which aircraft he loathed more, the Stirling or the Merlin-powered Handley Page Halifax. If Harris had got his way in 1943 Bomber Command would eventually have become an all-Lancaster force, with production of the Stirling and Halifax terminated and the factories turned over to building the Avro bomber. Had this happened, Tempsford's 'cloak and dagger' squadrons and the paratroop/glider tug units of No 38 Group would have been deprived of a useful and effective transport aircraft, which is something the Lancaster was neither designed for nor suited to.

Conceived to fulfil the requirements of Air Ministry Specification B12/36 issued in 1936 for a high-performance long-range heavy bomber capable of carrying a sizeable bomb-load, a half-scale wooden aerodynamic version was built and flown on 19 September 1938 to test and confirm the handling qualities of the full-size aircraft before the Stirling entered production. It was followed less than a year later on 14 May 1939 by the first of two full-size prototypes (L7600), which was written off when landing at Rochester, in Kent, after its initial test-

Shorts constructed a wooden half-scale flying version of the Stirling, the M4, to evaluate its design principles prior to building a full-scale prototype. The company's Chief Test Pilot John Lankester Parker, accompanied by Short's 'troubleshooter' Hugh Gordon, who sat behind him on sandbags, made the first test flight on 19 September 1938. Trials with the M4 were successful, but concerns were raised about the over-long take-off and landing runs, which led to the wing incidence being increased from 3.5 to 6.5 degrees

flight thanks to a binding wheel-brake that caused the tall undercarriage to collapse. With production line tooling already at an advanced stage, building went ahead despite this inauspicious start, and delivery of the first Stirlings to No 3 Group's No 7 Sqn at Leeming, in Yorkshire, began in August 1940.

From early 1941 the RAF's bomber offensive was given fresh momentum by the operational debut of the Stirling on 10 February, and in the months that followed it contributed significantly to the incremental build-up of Bomber Command's striking power.

In mid-1943 Stirlings equipped 12 of the RAF's frontline squadrons, although by this time Bomber Command viewed the aircraft as being something of a liability. During its 33 months of main force operations between February 1941 and November 1943, Stirlings suffered more than 700 operational losses. This was mainly due to the aeroplane's poor operating ceiling, which meant it was more vulnerable to damage by enemy flak. Mechanical and electrical reliability issues also plagued the Stirling in its early career, while the longitudinally partitioned fuselage bomb-bay meant that it could not accommodate bombs any bigger than 2000 lbs in size. By November 1943, rising losses compelled 'Bomber' Harris, Commander-in-Chief of Bomber Command, to withdraw the Stirling from operations over Germany. Instead it was allocated the less dangerous task of destroying V1 flying bomb sites being built in northern France, as well as undertaking mine-laying duties in enemy coastal waters. Another activity to which the Stirling proved well suited was supply-dropping to resistance organisations in occupied Europe.

The final bombing operation by Bomber Command Stirlings was performed on 8 September 1944 when four aircraft from No 149 Sqn attacked Le Havre in support of Allied ground forces battling to capture the French Channel port. However, Stirlings continued to serve with Bomber Command's No 171 and 199 (Bomber Support) Sqns, flying radio countermeasures (RCM) sorties and mounting diversionary attacks.

Crowds gathered on 14 May 1939 to watch John Lankester Parker fly the first of two full-size prototype Stirlings (L7600) from Rochester aerodrome. The test flight lasted about 15 minutes, but after making a good landing, the undercarriage on one side collapsed, followed swiftly by the other gear leg. The aircraft sank to the ground, bounced into the air and then bellied in. A binding wheel-brake was to blame

On a freezing 16 January 1942 at Mildenhall, Stirling I W7455/OJ-B of No 149 Sqn forms the looming backdrop to this photograph of Sqn Ldr Bryan Smithers and his crew. No 149 Sqn was the third unit to equip with the Stirling, the first examples of which arrived at the Suffolk airfield in November 1941. It was also the last of No 3 Group's squadrons to relinquish the Stirling, in September 1944

When it was recognised that the Stirling had reached its development potential as a bomber, the Air Ministry investigated its suitability as a replacement for the Whitley and Albemarle as a paratroop transport and glider tug. Thanks in part to its original design specification requirement to carry 24 troops if required, the Mk IV yielded readily to modification in preparation for D-Day and gave the Stirling a fresh lease of life. Indeed, in its Mk IV guise, the aircraft proved to be a resounding success, with the Stirling squadrons of No 38 Group playing an important role in the two massive airborne operations at Arnhem in September 1944 and the Rhine crossing in March 1945. In January and February 1945 the Stirling, in its Mk IV incarnation, also made a brief reappearance over Germany as a bomber when the squadrons of No 38 Group were called upon to attack tactical targets in support of ground forces.

Between late 1944 and mid-1946 the unarmed long-range Stirling V equipped six RAF squadrons, who used it for freight and passenger transport between the UK, the Middle East and India. In July 1946, No 1588 Heavy Freight Flight became the last active unit in the RAF to fly the Stirling, bringing to an end the aircraft's six-year career.

CHAPTER ONE

IN THE BEGINNING

N3638, the fourth production Stirling I, was delivered to No 7 Sqn on 10 September 1940 for intensive flying trials. It is seen here at Short & Harland's airfield at Sydenham, in Belfast, on 13 July 1940. The aircraft featured a trainer/prototype colour scheme of standard dark green/dark earth camouflage over yellow undersurfaces. It was also fitted with propeller spinners and exhaust stacks on the outer sides of the engine 'power eggs'

In the high summer of 1940 Britain was fighting for its very survival in the face of determined attacks by the Luftwaffe. In north Yorkshire the formation of a new RAF bomber squadron passed virtually unnoticed to all but a few. Four experienced tour-expired bomber pilots had joined together at the Aeroplane and Armament Experimental Establishment at Boscombe Down, in Wiltshire, to form the Stirling Development Flight. Once they had mastered the basics of flying a large and ungainly new bomber called the Short Stirling, the small team left for an airfield in the north of England. Here, they became the nucleus of No 7 Sqn, which was to be equipped with the Stirling. The unit had reformed at Leeming, near Northallerton, on 1 August 1940 under the command of Wg Cdr Paul Harris some ten weeks after it had been disbanded following a year flying the Hampden. With the assignment of the Stirling, No 7 Sqn had the distinction of becoming the premier unit to receive the RAF's first four-engined monoplane heavy bomber.

Powered by four Bristol Hercules radial engines and boasting a wingspan of 99 ft 1 in, the mighty Stirling was crewed initially by six men and could carry a bomb-load of 14,000 lbs inside its fuselage bomb-bay and wing cells. A mid-upper turret was absent from the design until the 81st aircraft to roll off the production line, when the Frazer-Nash FN 7A was introduced on the Mk I Series 3, establishing the standard defensive armament configuration for the Stirling.

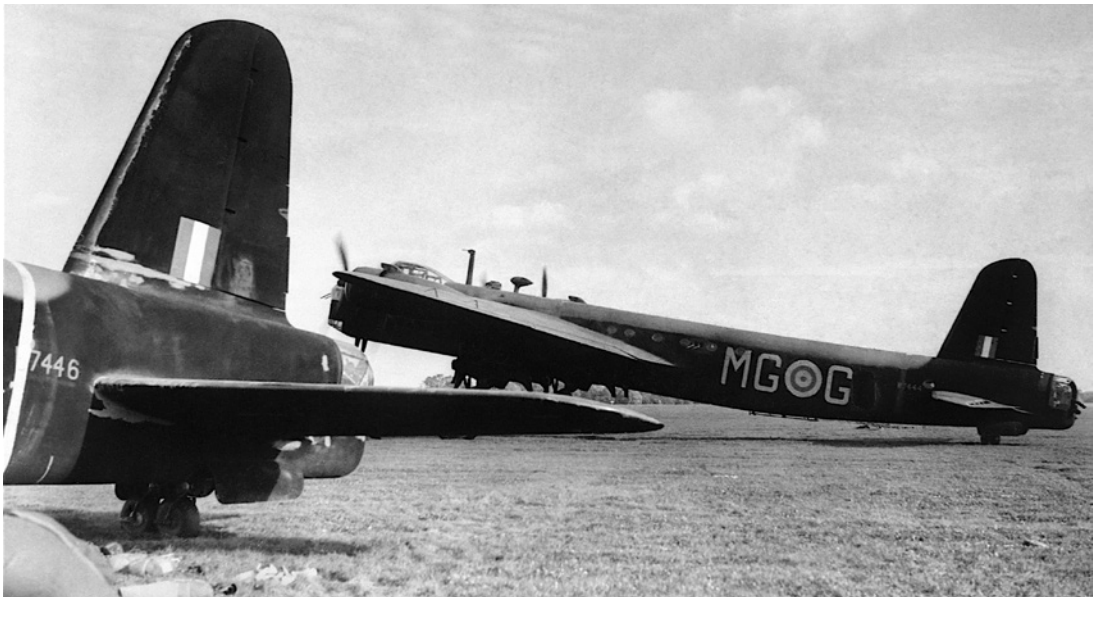
The first aircraft, Mk I Series 1 N3640, arrived at Leeming on 3 August, and the somewhat protracted working-up period which followed was beset by so many teething problems that Bomber Command was forced to declare the Stirling unsuitable for operations until these had been ironed out. No 7 Sqn moved south to Oakington, in the Cambridgeshire Fens, on 29 October, which became its home for the rest of the war. This non-operational period was well-spent by the air and groundcrews who engaged in training activities with the Stirlings to familiarise themselves with their new aircraft.

By January 1941 the squadron had received seven Stirlings. Pressure mounted on the RAF when Prime Minister Winston Churchill and the Minister of Aircraft Production Lord Beaverbrook urged it to do something with the new 'toy', which led No 7 Sqn to mount its first bombing operation on 10 February. Three Stirlings (N3641, N3642 and N3644), supported by 14 Wellingtons, bombed oil storage tanks at Rotterdam, without loss. Over the coming months, against a background of technical problems and poor weather, the unit struggled to mount further operational sorties. No 7 Sqn suffered its first loss on the night of 9/10 April when N6011, flown by Flt Lt Victor 'Farmer' Pike, was shot down by a Bf 110 of 7./NJG 1 near Lingen, in western Germany, en route to Berlin. It was one of three Stirlings that had been despatched as part of an 80-strong bomber force.

That same month saw the formation of a second Stirling unit, No 15 Sqn, commanded by Wg Cdr Herbert Dale. Flying from Wyton, in Huntingdonshire, its first operation was to Berlin on 30 April, but Dale's tenure as CO was cut brutally short when early on 11 May his Stirling (N3654) was shot down over Holland by a Bf 110 of 4./NJG 1, killing all of the crew. His place was taken by Wg Cdr P B B Ogilvie.

In the spring of 1941 the Battle of the Atlantic was going badly for Britain, with U-boat packs and surface raiders decimating Allied merchant

On the Stirling I Series II only, a pair of manually operated 0.303-in Browning guns was mounted on each side of the fuselage behind the rear spar frame, arranged to fire on the beam. Each pair of guns was carried on a swivel mounting. A detachable metal plate was provided to blank off the firing aperture when the guns were not needed. Each gunner was provided with a folding seat. Here, Mk I W7444 taxis past W7446 at Oakington in the autumn of 1941, both aircraft being assigned to No 7 Sqn. The Stirling suffered more than its fair share of undercarriage failures in frontline service, and both of these aircraft were written off in landing related incidents that saw their main gear collapse – W7444 on 31 October 1941 and W7446 just 18 days later



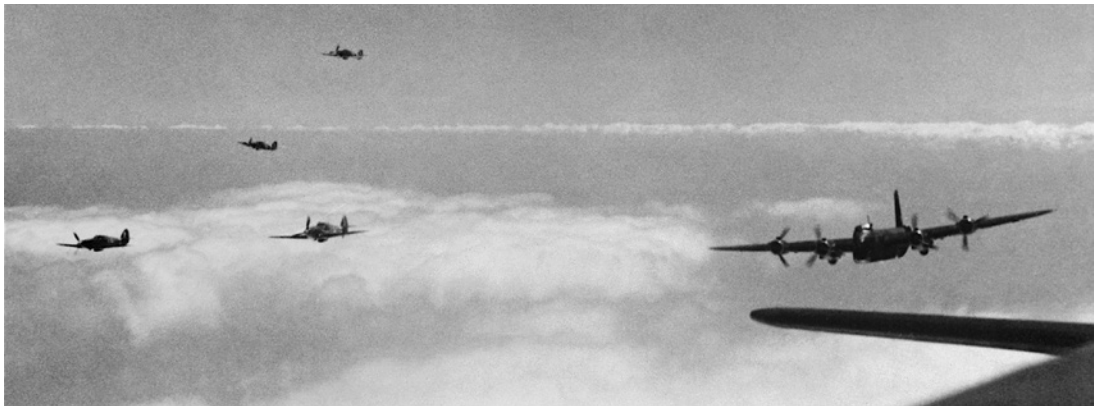
No 7 Sqn's N3641/MG-D takes off from Oakington in the summer of 1940. It had joined the squadron on 12 August and wears the early war Bomber Command colour scheme of camouflaged fuselage sides. The aeroplane also sports the long and thin national tail marking on its fin. N3641 was one of the three Stirlings that flew the type's first offensive operation of the war on 10 February 1941 to Rotterdam

convoys. On 9 March the Chiefs of Staff officially diverted Bomber Command from its main bombing campaign to attack U-boat bases and German warships, as well as the airfields used by the Luftwaffe's long-range Focke-Wulf Fw 200 Condor patrol aircraft. During April and May the two Stirling squadrons joined the assault on enemy maritime targets in France and Germany – the ports of Brest, Kiel, Hamburg and Bremen were among those hit, albeit with doubtful accuracy and disappointing results for the attackers.

On 27 May, 12 Stirlings and 52 Wellingtons were involved in an ultimately fruitless search over a vast expanse of ocean for the Hipper-class cruiser *Prinz Eugen*, which had fled towards France after the battleship *Bismarck* had been sunk in the north Atlantic by the Royal Navy earlier that same day. When it became known that the cruiser had reached sanctuary in Brittany, several night bombing raids were launched against the port of Brest that included Stirlings on the battle orders, commencing on 7/8 June and continuing six nights later. A third raid was mounted on 18/19 June, although ground haze and smoke screens obscured the warship and little damage was done.

Despite the attention being given to turning the tide in the Battle of the Atlantic, Bomber Command continued to mount operations over Germany in which one or two token Stirlings were involved. Berlin was raided on several occasions without loss until a minor attack on 10/11 May by 23 aircraft saw two Stirlings lost – No 7 Sqn's N6010, flown by Flt Lt N Williams RNZAF, and No 15 Sqn's NN3654, flown by unit CO Wg Cdr Herbert Dale. 'The Big City' was subject to a nuisance raid on 2/3 June by eight Stirlings and three Wellingtons, with one of the former – No 7 Sqn's W7430, flown by Flg Off J Mitchell – being claimed by a Bf 110 from 2./NJG 3.

Stirlings continued to be used regularly against German targets, albeit in penny-packet numbers. It was at this time that the cities of the industrial Ruhr first began to feature more significantly on Bomber Command's target lists. Six Stirlings went to Dusseldorf on 11/12 June and again five nights later (seven aircraft), while seven raided the chemical works at Hüls on 12/13 June. The greatest number of Stirlings so far to bomb a target was on 20/21 June when 13 aircraft joined a force of 115 Wellingtons, Hampdens, Whitleys and Halifaxes to hit Kiel, where the battleship *Tirpitz* was berthed. Crews found it impossible to identify and bomb the warship, however, so the city was attacked instead. Stirlings were among the small groups of aircraft that returned to bomb Kiel on 23/24 June (13 aircraft) and again three nights later, when 15 aircraft were involved. None were lost, but one Halifax and two Manchesters failed to return from the respective raids.



'CIRCUSES' AND DAYLIGHTS

A significant number of sorties flown by the two Stirling squadrons during the early summer of 1941 were undertaken in daylight, with the bombers accompanied by a fighter escort (codenamed 'Circus' operations). On other occasions, however, crews flew alone and undefended, relying on cloud cover to mask their outbound route. During this period of Stirling operations most aircraft were subjected to attacks by German fighters, whether by day or by night, with several losses resulting. Two Stirlings attempted a cloud-cover raid to Emden on 10 June, only to be forced to turn back when the forecast cloud cover failed to materialise. One of the two bombers claimed a Bf 109 as destroyed. On 18 July five Stirlings mounted cloud-cover raids to Holland and Germany, but the sorties were aborted. One of these aircraft was Stirling N6030 from No 15 Sqn, flown by Flg Off S D Marshall RAAF, which was lost without trace over the North Sea after it had turned back due to clearing skies.

Stirling Is of No 15 Sqn rendezvous with their fighter escort of Hurricane IIs from the Kenley Wing (Nos 258 and 312 Sqns) over the southeast coast of England on 5 July 1941 at the start of 'Circus 33' – the first daylight mission involving the Stirling. The target that day was the Fives-Lille steel works in northern France. With its high wing loading, the Stirling had a fast roll rate, and when needed it could out-turn Ju 88 and Bf 110 nightfighters, but not the more agile Bf 109s encountered during daylight missions such as this one. Although no Hurricanes or Stirlings were lost during 'Circus 33', four Spitfires were claimed by JG 2 and JG 26. Three were in fact lost

A flurry of intensive activity took place in July when small forces of Stirlings flew a succession of escorted raids during daylight to targets in northern France. Three went to Lille and Abbeville on the 5th, while the next day nine aircraft attacked the inland shipyard at Le Trait, along the banks of the river Seine, and the city of Lille further to the north, without loss. On the 7th, eight Stirlings bombed targets in northern France, while three more raided Mazingarbe on 8 July, with one aircraft lost to flak (No 7 Sqn's N6034, flown by Plt Off Reginald Morley) crashing into the sea. Three went to Chocques power station on the 10th, where another No 7 Sqn bomber (N6017, flown by Flg Off Cecil Fraser) fell to flak. Six raided Le Trait shipyard again on the 11th, when Hazebrouck was also bombed. The following day three Stirlings targeted the Arques boat lift, but most of their bombs missed the target. Three Stirlings attacked the Lille power station on the 19th,

Flak bursts rise to greet Flt Lt Bob Gilmour's No 15 Sqn Stirling I N3658/LS-E as it crosses the French coast heading for Lille on 'Circus 33'. Note the conspicuous Type A1 fuselage roundel, which caused some disquiet among bomber crews during 1941 because of its size and brightness

with one aircraft (No 7 Sqn's N6018, flown by Sqn Ldr T W Piper) being lost to flak, diving vertically into the ground – miraculously, Piper and one other crewman survived. Finally, three more Stirlings set out to bomb Hazebrouck again on the 20th, although this mission was aborted.

By early July, once the immediate crisis of the Battle of the Atlantic had begun to pass, Bomber Command was allowed to return to its primary task of bombing Germany, with the focus having now switched to the industrial Ruhr, civilian population centres and transportation targets. Small numbers of Stirlings also joined larger forces on night raids, with three going to Frankfurt on 7/8 July, one to Leuna oil refinery the following night, six to Hanover on 14/15 July and three to Cologne one week later. On 25/26 July a small raid was mounted on Berlin by seven Stirlings and two Halifaxes, resulting in the loss of two of the former (No 7 Sqn's N6035, flown by Flt Lt M C G Sherwood and No 15 Sqn's N6029, flown by Flt Lt F Thompson RAAF) and one of the latter, although both Stirling crews survived to become PoWs. Sadly, the Halifax crew was not so fortunate. Five Stirlings were part of a 116-strong force that bombed Cologne on 30/31 July, with violent summer thunderstorms and icing conditions playing havoc with the aircraft.

Wg Cdr H R 'Bobby' Graham took over command of No 7 Sqn from Wg Cdr Paul Harris on 13 April 1941. He led from the front, playing a full part in the daylight 'Circus' operations of the early summer against targets in France and the Low Countries. It was 'Bobby' Graham's sheer force of character that moulded No 7 Sqn into a successful frontline unit. In April 1942 he was posted to a staff job at Bomber Command HQ

One week earlier, following a report that the battlecruiser *Scharnhorst* had left Brest for La Pallice, six Stirlings from Nos 7 and 15 Sqns were despatched during the early evening of 23 July to attack the vessel with armour-piercing bombs. They encountered heavy flak and were attacked repeatedly by Bf 109s from 1./JG 2, which forced the bombers to dive to low level to make good their escape. One Stirling was fatally damaged in the duel that followed (N6038 of No 15 Sqn, flown by Flg Off Robert Campbell RAAF) and it crashed into the sea, claiming the lives of its crew.

This was yet further reinforcement of the folly of unescorted daylight raids by heavy bombers, regardless of whether they were armed with multi-gun power-operated turrets. Even so, this was not the last daylight bombing operation by Stirlings. That came on 18 December when 18 Stirlings were among a force of 47 aircraft despatched to Brest for a raid on German warships that included the *Gneisenau*. Heavy enemy fighter opposition – from I./JG 2 – was met, and in the melée that followed Wg Cdr H R Graham's Stirling (N3669) was hit by fire from both flak and fighters, with the rear gunner shooting down one of the Bf 109s. The gunners in the crews of Plt Off Bayley (N3668) and Flt Sgt Taylor (serial unknown) also accounted for one fighter apiece. No 15 Sqn gunners claimed two Bf 109s destroyed as well. It was a costly raid for the RAF, which lost eight aircraft, including three Stirlings from No 7 Sqn (N3680, flown by Flt Lt B Parnell, N6095, flown by Plt Off G T Heard, and W7436, flown by Sqn Ldr L W V Jennens). No 15 Sqn's casualties included W7428, flown by Flg Off G Bunce, and N3665, flown by Flt Lt G G Heathcote.

Bomber Command realised that if its heavy bombers were going to stand a reasonable chance of survival, then operations would have to be flown under the cover of darkness. With the number of Stirlings in the frontline slowly increasing and some improvements being made in serviceability, more aircraft began taking part in the growing night offensive against Germany and to other targets further afield.

THE ITALIAN JOB

Once the nights had begun to lengthen at the end of summer 1941, Bomber Command sent Stirlings from Nos 7 and 15 Sqns to northern Italy on 10/11 September on the type's first truly long-range operation. Their target was the northern city of Turin, and to reach it crews had to fly through the Alps. Five aircraft were lost on this raid, but none from among the 13 Stirlings despatched.

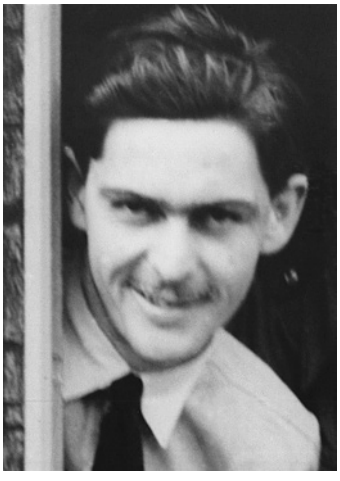
Italy was at the very limits of the Stirling's endurance. With a lengthy flight across France before threading a perilous pathway through the Alps, or following the western route across Lake Geneva, passing near Mont Blanc, bomb-loads were pared back so that more fuel could be carried. Sgt Jimmy Morris, a flight engineer with No 218 Sqn, remembers when his crew visited Genoa on 23 October 1942. 'On a long trip like this you could not afford to waste any fuel'. Careful fuel management and engine handling were essential for a successful sortie, but with the poor height performance of a heavily laden Stirling, it was always going to be a challenge. 'We started to climb over the Alps, which peak at about 16,000 ft, but there was no chance of getting the Stirling up to that height with the load we had on board, so it was a case of picking our way around the mountain tops at about 12,000 ft'. Others remembered the Italian trips for different reasons. In a last letter home before his death, Flt Sgt Kenneth Chapman RNZAF, a pilot with No 15 Sqn, described the same operation to Genoa on 23 October as 'a long and cold ten-hour flight'.

Italian targets were visited spasmodically by Bomber Command over the next two years until the final raid in August 1943, when 103 Stirlings were among the force that bombed Turin on the 16th/17th. The only Stirling to be lost on this operation was No 218 Sqn's EH884 flown by WO2 Stanley Chudzik RCAF, which was shot down from 14,000 ft by a nightfighter on its outward journey over eastern France, crashing at Ambérieu-en-Bugey. Only two survived.

Both awards of the Victoria Cross (VC) to Stirling aircrew were made to pilots flying sorties to distant Italian targets. The first occasion was on the night of 28/29 November 1942 when Flt Sgt R H Middleton RAAF was captain of a No 149 Sqn Stirling detailed to bomb the Fiat motor works at Turin. His aircraft was hit by flak over the target, severely wounding Middleton and his second pilot Flt Sgt L A Hyder. In very difficult conditions Middleton succeeded in flying the damaged bomber as far as the Kent coast, where he ordered the crew to bail out. Five were able to do so, but the flight engineer and front gunner stayed with Middleton as he steered the bomber out to sea to avoid crashing onto a populated area. He then ordered them to bail out (which they did, but they perished in the Channel during the night) before the Stirling plunged into the sea, taking Middleton down with it. His body was washed ashore on 1 February. Middleton was the first member of the RAAF to be awarded the VC in World War 2.

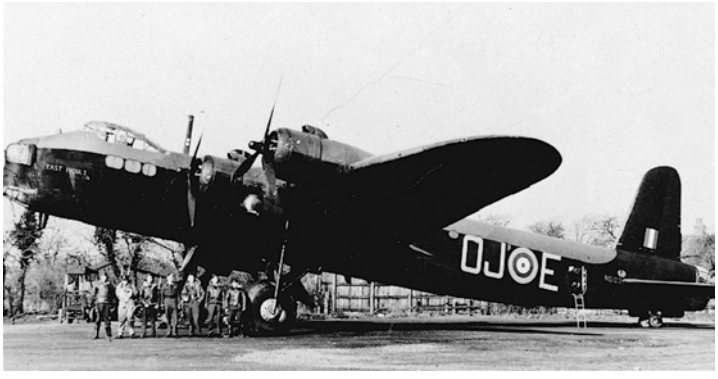
Hamish Mahaddie, a one-time flight commander on No 7 Pathfinder Force (PFF) Sqn before becoming Air Vice-Marshal Don Bennett's 'horse thief' at PFF headquarters, gives an interesting insight into Middleton's brief spell as a Pathfinder;

'I [had] a long conversation with young Middleton to whom I took a great shine, and was very impressed with him as a person and indeed his crew.



Sgt Ron Middleton joined the RAAF in 1940 and trained in Canada as a pilot. He was posted to No 149 Sqn in February 1942 as a second pilot, subsequently flying his first trip as captain to Dusseldorf five months later. Middleton became a posthumous recipient of the VC following his gallantry on a raid to the Fiat works at Turin on 28/29 November 1942

On 12/13 August 1943 Turin was once again the backdrop to the award of a second (posthumous) VC to a Stirling pilot, namely Sgt Arthur Aaron of No 218 Sqn. A native of Leeds, Yorkshire, Aaron was fatally wounded during the outward flight to Italy when his Stirling fell victim to what may have been a 'friendly fire' incident. He also received, posthumously, the Distinguished Flying Medal, which was Gazetted on 15 October 1943



In November 1941 No 149 Sqn at Mildenhall was the third unit to re-equip with Stirlings, moving to Lakenheath in the following April. Amongst the first examples of the Short bomber delivered to the unit, on 23 November, was N6103. Allocated the code letter 'E for Easy' and named *EAST INDIA 1*, this Stirling was eventually passed on to No 1651 CU at Waterbeach on 10 May 1942, with whom the aircraft was written off when it swung during take-off and the undercarriage collapsed on 2 September that year

I enquired if he had volunteered for Pathfinders, to which he replied that he had thought about it. I told him if he wanted to come he could join my squadron [No 7 Sqn]. He agreed, and in a few days he was in my Flight. By this time it needed reinforcing, as we had recently lost several crews.

'So, Middleton did two sorties I believe, and on each occasion he brought back an aircraft that was no longer capable of flying and was a write-off, it had so much flak and fighter damage. When the same thing happened a second time I had Middleton in and told him that one of his problems was his navigator, who was just not able to navigate him round the heavy flak areas. It was pointless him going right through the centre because he was incurring far too much damage and eventually he would be shot down. Of course he was highly hacked about this, and he insisted that he was not having his crew tampered with in any way. I agreed, but reminded him that he had volunteered to come here, so he could volunteer to go back to his squadron. I suggested that he might like to go and have a talk with his crew. I did not want to send him back to his squadron, but with a new navigator I believed he could eventually forge a good Pathfinding crew. Middleton did not want any of that but he said he would go and talk to his crew. Whether he did or not, he was back in very short order saying the crew had decided to go back to their old squadron, and I cleared him to return to his squadron [149] that same afternoon.'

Nine months later, on 12/13 August 1943, Turin was the target once again when the second Stirling VC action occurred. Flt Sgt Arthur Aaron of No 218 Sqn was captain of Stirling EF452 that was badly shot up outward bound over the Alps by another Stirling in what was believed to have been a case of 'friendly fire', killing the navigator and mortally wounding Aaron. In spite of his dreadful injuries, Aaron – who was flying his 20th op – directed his bomb aimer to fly the Stirling to North Africa, where, on the point of unconsciousness, he helped to crash-land the aircraft, thereby saving the lives of his crew. Aaron died from his wounds a few hours later and was posthumously awarded the VC on 5 November 1942.

The Special Night (RDMA2) matt black paint finish became standardised during 1940 for RAF aircraft operating at night, and continued to be used well into 1942. Special Night was problematic because in order to get a good velvet matt finish, the paint compound was only just stable and was prone to rub off easily. It was also difficult to make it adhere to an undercoat. As a result, aircraft wearing Special Night soon looked tatty, as evidenced by No 149 Sqn's Stirling I OJ-N

THE STIRLING FORCE EXPANDS

In November 1941, Wellingon IC-equipped No 149 Sqn at Mildenhall, in Suffolk, received its first Stirlings and a new commanding officer, Wg Cdr G J Spence. The unit duly undertook its first sorties with the Short bomber

on the 26th. In early 1942, No 218 Sqn at Marham, in Norfolk, began exchanging its Wellington ICs for Stirlings, followed by Wellington II-equipped No 214 Sqn at Stradishall, in Suffolk, in April. Thus, by the end of May, five Stirling squadrons were operational.

Change was also in the air at Bomber Command HQ because in February 1942 Air Chief Marshal Sir Arthur Harris took over as its Commander-in-Chief. Until then, the future of the command had hung in the balance owing to its poor operational performance. To make its critics in government and the British Army and Royal Navy sit up and take notice that Bomber Command was capable of greater things, Harris gambled its entire strength (and that of its training units) on a 'Thousand-bomber raid' against a single German target. Up to then, the largest bomber force sent to attack a German city had numbered 228 aircraft, but on 30/31 May 1091 RAF bombers, including five Stirling squadrons and one Stirling Heavy Conversion Unit (HCU), attacked the city of Cologne on the river Rhine in what was a watershed moment in the Allied strategic air offensive. Some 1455 tons of bombs were dropped on the city, killing 486, injuring 55,027 and destroying 18,432 buildings. Forty-three bombers failed to return, including two Stirlings – No 214 Sqn's W7534 (flown by Plt Off H Dent) and W7502 of No 218 Sqn (flown by Plt Off A W Davis).

A punctured port main wheel tyre caused No 15 Sqn's W7513 to swerve into soft ground and tip over when landing back at Wyton upon returning from the second 'Thousand-bomber raid' to Essen on 2 June 1942. Light flak had damaged the aircraft and badly wounded the rear gunner. W7513 was repaired and later served with Nos 149 and 75 (NZ) Sqns, before failing to return from the RAF's most costly mine-laying operation of the war on 28/29 April 1943

To reinforce his message to Bomber Command's detractors at home and of course to the Germans, Harris' bombers struck again two nights later on 1/2 June when 956 aircraft (including 77 Stirlings) raided Essen, home to the Third Reich's munitions industries. Although this operation was not as successful as the Cologne raid, when taken together the first two 'Thousand-bomber raids' were siren calls of the future fate awaiting every large German city.

One Stirling failed to return from the Essen mission, No 7 Sqn's N3750 flown by Flt Lt N E Winch, which was shot down over the Dutch border but all the crew survived to become PoWs. Amongst the latter was none other than Oakington's station commander, Gp Capt Herbert Massey, who became the Senior British Officer at Stalag Luft III – the 'Great Escape' camp – and authorised the infamous breakout in March 1944, although by that time he was no longer there, having been repatriated on health grounds. (It is interesting to note that Oakington lost a second station commander, Gp Capt A H Willetts, on ops to Berlin on 23/24 August 1943 when Lancaster III JA678 of No 7 Sqn was shot down by a nightfighter. All the crew survived to become PoWs.)

Photographed at Stradishall on 1 June 1942, Sgt Len Tonkin RAAF and his No 214 Sqn crew prepare to climb into Stirling I R9326/BU-G prior to their mission to the city of Essen in the second 'Thousand-bomber raid'. Having arrived on the squadron on 15 May, R9326 had a short life because it failed to return from a mine-laying sortie to 'Nectarine II' on 11 June. Tonkin's bomber was hit by flak from Borkum, the Australian pilot being forced to crash-land on the small East Frisian island of Memmert, off the north German coast. He and his nine-man crew duly spent the rest of the war as PoWs

The Parnall FN 50 mid-upper turret replaced the unpopular egg-shaped FN 7 on late series Stirling Is and on the Mk III. It was roomy, relatively comfortable and offered the gunner an all-round field of vision. A taboo track and metal fairing around the base of the cupola prevented the operator from accidentally damaging the airframe with misplaced rounds. Here, Sgt Tony Faulconbridge peers at the camera from the turret of a No 90 Sqn Mk III

Another positive development for Bomber Command was the introduction of a number of cutting-edge blind bombing, navigational and RCM devices known by the curious codenames of Oboe, H2S and 'Window'. Stirlings of Nos 7 and 15 Sqns were the first RAF bombers to use Oboe operationally on 7/8 December 1941 in a minor raid on Brest, and in late 1942 No 7 Sqn received the first H2S sets to be issued to Bomber Command. The unit was ready to use them operationally by the end of January 1943. Use of 'Window' (metallised paper strips dropped in bundles from the air to 'fog' enemy radar screens) was held back for as long as possible so as not to alert the Germans to its existence, thus hopefully preventing them from developing a countermeasure – it was first used operationally on 24/25 July 1943 against Hamburg, of which more later.

From August 1942 some Stirling Is were retrofitted with the improved Frazer-Nash FN 50 dorsal turret, which was also installed in the Mk III. It offered gunners better visibility and featured 'taboo track' interrupter gear to stop the guns from being fired into the wings, fuselage or tailplane.

PATHFINDER STIRLINGS

'Bomber' Harris had strongly opposed the creation of a separate pathfinder force on the grounds that it was unfair to strip the other bomber groups of their best crews to form a *corps d'élite*. However, his hand was forced by the Prime Minister, Winston Churchill, and on 5 July 1942 Gp Capt Donald Bennett was appointed to command the Pathfinders. Several weeks later on 15 August the PFF came into being, with its headquarters at Wyton in Huntingdonshire. No 7 Sqn with its Stirlings was one of the five founder units (Nos 7, 35, 83, 109 and 156 Sqns) of the new target marking force

A pair of 2000-lb High Capacity bombs are hoisted into the narrow fuselage bomb-bay of an unidentified No 7 Sqn Stirling, possibly MG-B. Also in evidence are trolleys loaded with small bomber containers filled with four-pound incendiaries – a typical area load for bombing cities. The two-window configuration on the forward fuselage and what appears to be Hercules VI or XVI engines suggest a late series Stirling I or an early Mk III

and flew its final operation as a main force squadron to Osnabruck on 17/18 August. The unit was to fly Stirlings on PFF operations until it began the process of converting to Lancasters in May 1943, although both types were used until Stirlings flew their last pathfinder sorties on 10/11 August to Nuremberg.

Being a man of action, Australian Don Bennett investigated the problems preventing the Stirling from reaching an acceptable operating ceiling. Hamish Mahaddie describes what Bennett did;

'When he looked at the tremendous penalty borne by the aircraft in regard to the armour plating carried, the first thing to go was a huge half-inch-thick slab that could have graced Fort Knox, but which protected the wireless operator and the cabin crew, and that must have weighed several hundred pounds. Next, he interrogated the gunners and found the average rounds used by them (that came back) was something in the order of 350 per gun, and they carried and brought back several thousand rounds per gun. He then made careful research into the reserve fuel lifted and found we all returned with about 23 per cent of our fuel. This reserve was cut to around 12 per cent, and the result was the Stirling was able to operate above 18,500 ft, which was a much better height than the 12,500 ft we struggled to in the early days of PFF. I remember at the time that all the crews felt a great deal happier being so much nearer the rest of the Lancs and Halifaxes, and no longer were in great danger of our "oppoes" dropping bombs and incendiaries on us.'

In November 1942 two new Stirling squadrons came into being, No 75 (New Zealand) Sqn trading its Wellington IIIs for Stirlings at Newmarket, in Suffolk, while at Bottesford, in Leicestershire, No 90 Sqn was reformed after having been disbanded nine months earlier. As the first and only New Zealand heavy bomber squadron in Bomber Command, No 75 (NZ) Sqn was statistically a unique unit. During the war it flew the most sorties both in No 3 Group and in the whole of Bomber Command, while suffering the second highest number of aircraft lost (193), of which no fewer than 72 aircraft were Stirlings.

No 7 Sqn was one of the five founder units of the Pathfinder Force in August 1942. This photograph was taken in May 1943, and it shows Wg Cdr Hamish Mahaddie (centre, front row, with medal ribbons on his battledress jacket) and 'C' Flight groundcrew. Mahaddie later joined Air Commodore Don Bennett at PFF HQ as the AOC's 'horse thief', being tasked with finding and selecting future Pathfinder crews from the main force squadrons, and then overseeing their training for this highly specialised role – a job that did not endear Mahaddie to Bomber Command's squadron commanders

CHAPTER TWO

GROWING STRENGTH

The differences between early Stirling Is are well illustrated in this photograph. N6069 (foreground) of No 1651 HCU is a Mk I Series III with a Frazer-Nash FN 7A dorsal turret, whilst in the background is W7427 of No 26 CF (formerly with No 15 Sqn), which is a Mk I Series I aircraft with no dorsal turret. Both aircraft wear the standard night bomber scheme of dark green, dark earth and night black. Note also how W7427's tailwheels have been locked down and the doors removed

Bomber Command continued to grow in size and operational capability, with a dedicated Canadian bomber group, No 6 (RCAF) Group, being formed on 1 January 1943 and the PFF squadrons assuming full bomber group status as No 8 (Pathfinder) Group that same month. Its Air Officer Commanding (AOC), Don Bennett, was promoted to air commodore (later, in 1944, at 33 he became the youngest air vice-marshal in the history of the RAF). The number of heavy bomber aircraft routinely deployed for night operations grew dramatically in 1943, with 500, 600 and even 700 aircraft in one night blitzing cities of the German Reich, compared to the maximum effort raids of perhaps 250 aircraft the year before.

In January 1943 No 3 Group units began receiving the improved Stirling III, with No 15 Sqn being the first to operate the new aircraft. By the time of the Ruhr offensive in March of that year almost 80 aircraft had been delivered to Bomber Command's seven Stirling squadrons. Key improvements to the Stirling design embodied in the Mk III included more powerful 1635 hp Bristol Hercules VI and XVI radial engines, which offered an improved rate of climb and ceiling, wire throttle controls in place of the troublesome Exactor system of the Mk I and a lower-profile Frazer-Nash FN 50 dorsal turret as a replacement for the earlier asymmetric FN 7A.

From early 1943, increased production at the four principal Stirling manufacturing locations enabled the formation of 'C' Flights on

the squadrons, from which new squadrons were eventually formed. In the meantime, the third Flight meant that operational effort by the squadrons was doubled within two months. On 1 April, No 75 (NZ) Sqn at Mepal, in Cambridgeshire, became the first to expand when eight Stirlings were added to its strength, increasing the establishment to 24 aircraft and three reserves. To sustain these bigger squadrons, greater capacity was needed in the HCU training system to support an increased output of trained aircrews. On 1 May 1943, 32-aircraft 'Stirling half-Conversion Unit' No 1665 HCU was formed at Waterbeach, in Cambridgeshire, before moving on 7 June to Woolfox Lodge, in Rutland.

No 75 (NZ) Sqn was the first Commonwealth unit to be formed in Bomber Command, and it flew Stirlings from November 1942 until April 1944. This group of aircrew are pictured against the backdrop of Stirling I EE897/AA-G at Newmarket in June 1943. Flt Sgt Don Whitehead is fourth from left, squadron CO Wg Cdr Michael Wyatt is sixth from left and Sqn Ldr Dick Broadbent (flight commander) is eighth from left. The squadron flew missions on nine nights in June 1943, losing eight aircraft and their crews

A flurry of further activity occurred in the early summer with the formation of No 620 Sqn in June with Stirling Is at Chedburgh, Suffolk, which were superseded by Mk IIIs in August, while Nos 196 and 199 Sqns formed with Mk IIIs in July at Witchford, Cambridgeshire, and Lakenheath, Suffolk, respectively – both units had previously flown Wellington Xs. The time spent in the bombing role by Nos 196 and 620 Sqns was short-lived, however, as they became transport units upon their transfer to the newly created No 38 (Airborne Forces) Group in November 1943, while No 199 Sqn joined No 100 (Bomber Support) Group in May 1944 as an RCM unit. August saw the formation of No 623 Sqn at Downham Market, in Norfolk, from 'C' Flight of No 218 Sqn. The intention was to make it a two-flight squadron with 20 aircraft, but the unit never achieved a strength of more than ten Stirling IIIs before being disbanded in December. During its short life No 623 Sqn flew 137 operational sorties, mainly bombing, but with some mine-laying, and it lost ten Stirlings – a not inconsiderable number given its brief existence and modest aircraft establishment.

NEW CREW CONVERSION

Until the introduction of the new breed of four-engined bombers like the Stirling and Halifax in 1940-41, novice crews graduated from Operational Training Units (OTUs) equipped with twin-engined Wellingtons, Whitleys, Hampdens and Blenheims and then went directly to frontline squadrons equipped with similar twin-engined aircraft. But new multi-engined types like the Stirling differed from their twin-engined predecessors in their degree of complexity and by the simple fact that they had twice as many engines. They also had two new additional crew members – a flight engineer to help the pilot with the increased workload presented by four engines and a mid-upper gunner.

The problem of converting pupil crews from two to four engines was solved, initially, by withdrawing a number of aircraft from the squadron concerned to form a conversion flight. The first of these was created in October 1941 when 'C' Flight of No 7 Sqn was hived off to create No 26 Conversion Flight (CF) at Waterbeach. It ultimately became a part of the first Stirling HCU to be formed, No 1651, on 2 January 1942. But the burning question remained. What was going to happen once the first batch of crews to fly the Stirling had been trained on the new squadron aircraft? Would the whole system fall apart if the squadron had to withdraw most of its aircraft for the training of successive batches of new crews?

Towards the end of 1941 each of the four Stirling squadrons then in existence (Nos 7, 15, 149 and 218) was ordered to form a CF for training new crews to operational standard. Each squadron was to make available four aircraft from its own establishment for this task. With the steady increase in the number of four-engined bombers entering service, it was soon realised that dedicated units would be needed to convert crews from twin- to four-engined flying before they joined frontline squadrons. The answer was to form HCUs as the second and final stage of operational training, equipped with the particular four-engined bomber relevant to each bomber group (for example, No 3 Group's HCU flew Stirlings and No 4 Group's was equipped with the Halifax) where pupil crews flew a further 40-45 hours before joining a squadron. A second Stirling HCU, No 1657, opened at Stradishall on 1 October 1942 to cope with the training requirements of No 3 Group's expanding Stirling force.

By May 1943 all eight Stirling squadrons had expanded their establishments to three Flights due to a combination of sustained production of aircraft by the factories and increased throughput of crews from HCUs. Establishments were increased by three aircraft to 24, plus six in reserve, with 33 crews. As already mentioned, a third HCU, No 1665, was formed at Waterbeach that same month.

More Stirlings and more crews meant the squadrons were better placed to field a maximum effort when called upon to do so by Bomber Command HQ. But continuing problems with aircraft reliability and high rates of attrition meant this was never fully realised. Albeit in small numbers, the Stirling squadrons of No 3 Group took part in the three major night bomber offensives of 1943 – the Battles of the Ruhr, Hamburg and Berlin, with the latter spilling into 1944. Beginning in early March, Bomber Command launched 35 major raids, most of which were directed at targets in the Ruhr valley, the heartland of Germany's armaments industry. Although this offensive brought unprecedented chaos and destruction to the Rhineland and the Ruhr, it was also characterised by heavy losses among the attacking force.

With a sortie length on average of between four and five hours, the cities of the Ruhr were close enough for the Stirling to be able to carry a worthwhile weapons payload. Typical bomb-loads for this offensive as recorded in the log book of No 75 (NZ) Sqn flight engineer Chris Dickenson included three 1000-lb bombs and 15 small bomb containers (SBC, packed with incendiaries), with this combination being repeated many times by the Stirlings that attacked targets in the Ruhr.

The five-month long assault opened on 5/6 March with an attack on Essen by 442 aircraft, including 51 Stirlings, led by Oboe Mosquitoes of No 109 Sqn and marked with great accuracy by the PFF, which included two Stirlings from No 7 Sqn in its number. Bombing was concentrated and only 14 aircraft were listed as missing from this operation, including three Stirlings – R9271 (No 90 Sqn, flown by Plt Off W A Fowlie), BK662 (No 214 Sqn, flown by Sgt H W Baldock) and R9333 (No 218 Sqn, flown by Plt Off G A Ratcliffe). Serviceability rates within the Stirling units were still poor, with No 149 Sqn, for example, fielding just six aircraft on the Essen raid, with No 218 Sqn being the best performer with 11.

Plt Off Denis J Brown, bomb aimer Sgt William T Jones, air gunners George Sutton and Leslie Turner, flight engineer Sgt Walter Lowery, navigator Sgt Thomas Rich and wireless operator Sgt Pardrige are seen here during the final stage of their training with Waterbeach-based No 1657 HCU. Their Stirling, XT-W, sports an FN 50 mid-upper turret. The Brown crew subsequently joined No 218 Sqn but was lost over Denmark on 29 April 1943 when Stirling I BF447 was shot down by a Bf 110 of II./NJG 3 – two of the seven-man crew managed to bail out, but the remaining five (Brown, Rich, Flg Off J W Scott, Jones and Sutton) perished. Their aircraft was one of 32 bombers lost that night. Brown (aged 22) was an only son, and as with so many other grieving families, his loss was felt very deeply

Essen was visited again on 12/13 March in another successful Oboe-marked raid by 457 aircraft, including 42 Stirlings. The Krupp factory suffered further damage, although 23 aircraft failed to return, including two Stirlings – No 7 Sqn's BK592, flown by Flt Sgt D E Street, and No 149 Sqn's EF330, flown by Flt Sgt F A Pearson. Bad weather interrupted operations before the next big raid, which came on 26/27 March when 455 aircraft attacked the great inland port city of Duisburg, although only two Stirlings were available.

During the first month of the Ruhr offensive, Stirling squadrons took part in attacks on other targets elsewhere in France and Germany. To underline this unrelenting intensity, Stirlings also flew on the following raids;

Nuremberg, 8/9 March, four Stirlings lost – No 7 Sqn's R9270, flown by Flt Lt J P Trench, and BK610, flown by Sgt L L V Toupin RCAF; No 15 Sqn's BK697, flown by Plt Off J G Ripley RCAF; and No 75 (NZ) Sqn's BF437, flown by Sgt C R Davey RNZAF.

Munich, 9/10 March, one Stirling lost – No 7 Sqn's R9149, flown by Plt Off F M Tomlinson RCAF.

Stuttgart, 11/12 March, three Stirlings lost – No 7 Sqn's W7617, flown by Sqn Ldr M E Thwaites; No 149 Sqn's EF327, flown by Plt Off I T S Fulton; No 214 Sqn's BF469, flown by Plt Off A Carruthers RCAF; and No 218 Sqn's BF343, flown by Flt Sgt G A Parkinson RNZAF.

St Nazaire, 22/23 and 28/29 March, no Stirlings lost.

Berlin, 27/28 March, two Stirlings lost – No 7 Sqn's BF317, flown by Plt Off M Lord RNZAF, and No 214 Sqn's BF453, flown by Plt Off E Challis

Berlin, 29/30 March, three Stirlings lost – No 149 Sqn's BK708, flown

Tail up, taking off from Lakenheath at dusk, a No 149 Sqn Stirling heads out into the gathering darkness

No 75 (NZ) Sqn's Sgt Don Whitehead and his all NCO crew photographed before take-off on 24 April 1943. Surviving intensive operations throughout the Battle of the Ruhr, they are, from left to right, Rex Jamieson RNZAF (rear gunner), Maurice Parker RNZAF (bomb aimer), Charlie Parker RNZAF (wireless operator), George Stokes RAFVR (mid-upper gunner), Hugh McLellan RAFVR (flight engineer), Sgt Don Whitehead RNZAF (pilot) and Peter Dobson RNZAF (navigator)

by Plt Off I T S Fulton; and No 218 Sqn's BK702, flown by Sgt W G Hoar RCAF, and BK716, flown by Flg Off J F Harris.

As the distance to a target increased, the Stirling's bomb-load was significantly reduced when compared to that of the Halifax and Lancaster. When Mannheim was raided on 16/17 April by 271 aircraft, including 95 Stirlings, losses were high and included seven Stirlings – No 15 Sqn's BF474, flown by Plt Off J L Shiells, and BK691, flown by Flt Lt D H Haydock; No 75 (NZ) Sqn's W7469, flown by Plt Off K F Debenham RNZAF, and BF451, flown by Plt Off K H G Groves RNZAF; No 90 Sqn's BK725, flown by Plt Off P D White; No 214 Sqn's BK653, flown by Flg Off D E James; and No 218 Sqn's BF514, flown by Plt Off D F Howlett.

On 4/5 May the largest 'non-1000' bomber raid of the war so far was directed against Dortmund, one of the principal centres of German industry. A force of 596 aircraft comprising 255 Lancasters, 141 Halifaxes, 110 Wellingtons, 80 Stirlings and 10 Oboe Mosquitoes caused severe damage to central and northern districts of the city and almost 700 people were killed – a grim new record for the number of civilian casualties in a single raid. Far worse was soon to come, however, for other German cities. Losses among the attacking aircraft were high at 31, which included seven Stirlings – No 7 Sqn's BK773, flown by Plt Off W Holden RCAF; three aircraft from No 15 Sqn, EF345, flown by Plt Off J H Stowell RNZAF, BK658, flown by Sgt W M McLeod RNZAF, and BK782, flown by Plt Off T E Emberson; No 90 Sqn's BK814, flown by Sgt F C Maxwell; No 149 Sqn's EF343, flown by Flg Off W E Davey; and No 218 Sqn's BF505, flown by Flt Lt W L Turner.

When compared to the efforts of the other heavy bomber types, the Stirling squadrons were not able to put up a sustained maximum effort night after night when required. In the excoriating words of 'Bomber' Harris, the Stirling squadrons 'made no worthwhile contribution to our war effort in return for their overheads. They are at half-strength, and serviceability is such that in spite of the much reduced operational rate and long periods of complete idleness due to weather, I am lucky if I can raise 30 Stirlings from No 3 Group for one night's work after a week of doing nothing, or 20 the other night'. This was no reflection on the commitment and bravery of the crews, but rather a dig at the poor quality of aircraft turned out by Shorts and its subcontractors Austin and Short & Harland, which led to the serviceability problems at squadron level.

Duisburg and Bochum were raided again on 12/13 and 13/14 May, respectively. Some 572 aircraft hit Duisburg in the fourth raid in the Battle of the Ruhr, which included 70 Stirlings among the attacking force. Huge damage was inflicted on the centre of the city for the loss of

34 aircraft, including five Stirlings – No 90 Sqn's BF523, flown by Sgt W Morey RCAF, and BK661, flown by Plt Off J I Gedak RCAF; No 149 Sqn's EF357, flown by Sgt E G Bass; No 214 Sqn's BF381, flown by Plt Off H Broadbent; and No 218 Sqn's BK705, flown by Plt Off R J Bryans RCAF. Bochum was targeted by 442 aircraft, where further damage to the city was caused and 302 people were killed. Losses were relatively high among the bomber force, with 24 aircraft missing, including four Stirlings – No 15 Sqn's BK704, flown by Sqn Ldr C C J Bowyer; No 149 Sqn's BF479, flown by Flg Off L C Martin, and BK726, flown by Plt Off H E Forsyth RCAF; and No 214 Sqn's R9242, flown by Sgt R M Gibbney.

The vulnerability of the tail gunner is graphically illustrated in this photograph of No 75 (NZ) Sqn's Stirling III BF517/AA-O, which was caught near Duisberg by a nightfighter on 26/27 April 1943, killing the gunner Sgt Brian Rogers RAFVR and wounding two other crew members. Skipper Plt Off Peter Buck RNZAF and navigator Plt Off John Symons RCAF received immediate DFCs for their courage and skill in bringing the crippled Stirling home. On the left is 'C' Flight commander Sqn Ldr Dick Broadbent RNZAF and on the right is visiting Kiwi fighter ace Wg Cdr Bill 'Hawkeye' Wells, then Wing Leader of the Kenley Wing

After a nine-day lull in operations, during which time the famous dams raid was flown on 16/17 May by Lancasters of No 617 Sqn, Dortmund was bombed by 826 aircraft on 23/24 May – another significant increase in numbers, making it the largest 'non-1000' raid up to this point, as well as the biggest of the Battle of the Ruhr. A sizeable contribution of 120 aircraft by the squadrons of No 3 Group marked the largest turnout yet of Stirlings. Swathes of Dortmund were devastated and 599 people killed in what was considered by the RAF to be a very successful raid. Bomber losses were slightly lower at 38 aircraft (4.6 per cent of the force), including six Stirlings – No 15 Sqn's BF482, flown by Plt Off W Q Johnson RCAF; No 75 (NZ) Sqn's BK783, flown by Sgt S M Tietjens RNZAF; No 214 Sqn's BF478, flown by Sgt J W Evans, BF528, flown by Sgt J K Wilkins RNZAF, and MZ261, flown by Sgt J J Egan RAAF; and No 218 Sqn's BK706, flown by Flg Off J Phillips.

Raids on Dusseldorf (25/26 May) and Essen (27/28 May) followed, then, two nights later, Wuppertal was visited by a force of 710 bombers, including 118 Stirlings, in what became the most devastating raid of the Ruhr offensive. Pathfinder marking and Main Force accuracy started a massive conflagration in the old town, causing a catastrophic firestorm to develop. German defences were overwhelmed by the sheer concentration of bombers passing over the aiming point at once, and about three-quarters of the town was destroyed by fire. Five of Wuppertal's six largest factories were also wiped out. The civilian death toll was estimated at 3500, while the RAF lost 33 aircraft, including eight Stirlings.

No 75 (NZ) Sqn fared badly, losing four aircraft and crews – EF398, flown by Flg Off R B Vernazoni RNZAF, BF561, flown by Flt Sgt S R Thornley RNZAF, BK776, flown by Plt Off R F Bennett RNZAF, and EH881, flown by Flt Sgt J H R Carey RNZAF. No 90 Sqn lost EF349, flown by Plt Off R W J Letters, and EF397, flown by Plt Off E A Norton. The two aircraft that failed to return from Downham Market's No 218 Sqn, BF565, flown by Plt Off S G Allan RAAF, and BK688, flown by Flt Sgt W A M Davis

RAAF, were believed to have been shot down by future ranking nightfighter ace Ltn Heinz-Wolfgang Schnaufer of II./NJG 1.

After a break of a fortnight during the moon period, on 11/12 June Dusseldorf was hit again, this time by 783 aircraft (setting a new record for the number of aircraft despatched), in what proved to be the most damaging raid of the war for this city. Some 38 bombers failed to return, including two Stirlings – No 15 Sqn's BF571, flown by Sgt R E Allen, and No 75 (NZ) Sqn's BK817, flown by Sqn Ldr R H Laud. On the same night a mass trial of H2S was carried out when 72 aircraft, all from No 8 (PFF) Group, raided Münster, including 21 Stirlings. Five aircraft, including one Stirling (No 7 Sqn's R9286, flown by Flg Off E P Deville), failed to return. Stirlings were active again in force on 19/20 June when 290 aircraft, including 107 Stirlings, bombed the Schneider armaments factory and the Breuil steelworks. Two Halifaxes failed to return.

The losses of aircraft and crews towards the end of June 1943 were massive across all heavy bomber groups, and No 3 Group was no exception. Increasing numbers of aircraft flying more operations at night against heavily defended targets meant the likelihood of higher casualties among bomber crews. In 1942 less than half of all RAF heavy bomber crews survived their first tour of 30 operations, and just one in five would survive a second tour. By 1943 the odds against survival had increased further still, with one in six expected to survive their first tour, while only one in 40 would survive two tours. In five major raids in nine days between 21 and 29 June, 168 aircraft failed to return. Loss rates like these were unsustainable;

Krefeld, 21/22 June, nine Stirlings lost – No 7 Sqn's R9266, flown by Flt Lt C D Ince, R9272, flown by Flt Lt J S Watt, EF366, flown by Flg Off R B Meiklejohn RAAF, and EF387, flown by Sqn Ldr C A Hughes; No 15 Sqn's BK815, flown by Plt Off E F Curtis; No 90 Sqn's EE887, flown by Plt Off H N Peters RAAF; No 149 Sqn's BK799, flown by Plt Off J Lowrie; and No 218 Sqn's BK712, flown by Plt Off W G Shillinglaw RAAF, and BK722, flown by Plt Off D R Rich RAAF.

Mulheim, 22/23 June, 11 Stirlings lost – No 15 Sqn's EF348, flown by Sgt J W Newport, and BK656, flown by Flg Off J V Hawkins RNZAF; No 75 (NZ) Sqn's EF399, flown by Flt Sgt K A Burbidge RNZAF, BK810, flown by Plt Off F M McKenzie RNZAF, EF408, flown by Flt Sgt B B Wood, and EH889, flown by Flt Lt T F McCrorie; No 90 Sqn's BK665, flown by Sgt P C McNair, and BK804, flown by Flt Sgt J A Robson; No 214 Sqn's EH882, flown by Flt Lt W J Hein; No 218 Sqn's BF572, flown by Flt Sgt J B H Smith RAAF; and No 620 Sqn's EE875, flown by Sgt J Nicholson.

An early casualty of the Battle of the Ruhr period, No 149 Sqn's Flt Lt George Ivan Ellis from Timaru, New Zealand, was lost without trace on 20 April 1943 in Stirling III BK698. With his crew of seven, they were heading for the Baltic port of Rostock when they disappeared, cause unknown. Ellis is seen here, fourth from left in the front row, with his crew and groundcrew at Lakenheath in early 1943

Wuppertal, 24/25 June, 11 Stirlings lost – No 7 Sqn's R9281, flown by Flg Off A J Davis, and EF392, flown by Sqn Ldr J R Savage RAAF; No 15 Sqn's EH890, flown by Sgt W Towse; No 75 (NZ) Sqn's EH902, flown by Plt Off N B Blucke RNZAF; No 90 Sqn's BK628, flown by Sgt J M Steel, and BK813, flown by Flt Sgt W H Teede RAAF; No 214 Sqn's EE883, flown by Sgt C K Miller, and BF501, flown by Sgt J W D Hoey RCAF; No 218 Sqn's EH892, flown by Sqn Ldr A Beck; and No 620 Sqn's BK720, flown by Sgt P O'Connell, and BK800, flown by Flt Sgt R P Reynolds.

Gelsenkirchen, 25/26 June, six Stirlings lost – No 15 Sqn's BK699, flown by Plt Off M A Chapman; No 75 (NZ) Sqn's BK768, flown by Flg Off W R Perrott RNZAF; No 90 Sqn's EH900, flown by Flg Off F C McKenzie RAAF; No 214 Sqn's BK767, flown by Sgt B H Church; and No 218 Sqn's EF430, flown by Sqn Ldr D M Maw, and EH898, flown by Sgt E C Hughes.

Cologne, 28/29 June, five Stirlings lost – No 15 Sqn's BK694, flown by Sgt J B Keen, and EH888, flown by Sgt A F Saunders; and No 149 Sqn's BF483, flown by Sgt R K Scott, BK703, flown by Flg Off W R Booker, and EE880, flown by Flg Off A R Porter.

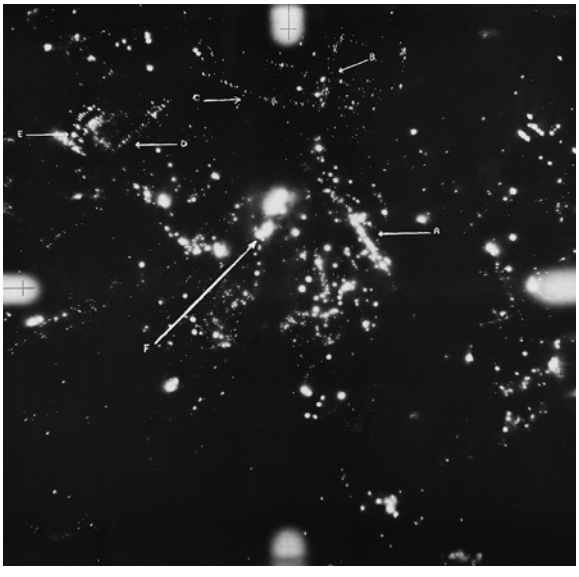
July saw the Ruhr offensive draw to a close with a devastating attack against Aachen on the 13th/14th, when a strong tailwind meant that many of the Main Force aircraft were already over the target before the first Pathfinder markers were dropped. This resulted in a concentrated attack that produced a firestorm in the streets below, causing destruction on a massive scale. Many aircraft in the Stirling force were carrying incendiaries, and these would have stoked the fires of the already blazing city. From a force of 374 aircraft, only 55 were Stirlings, and just one example failed to return – No 90 Sqn's EE873, flown by Flt Lt C E Coombs, which was lost to a nightfighter over Belgium.

HAMBURG FIRE RAIDS

Hamburg was well known to the RAF's raid planners, having been attacked 98 times by Bomber Command since the beginning of the war. Its importance as a sea port and the second largest city in Germany, with a population of more than 1.5 million, meant that its complete destruction would have serious implications for the Third Reich's industrial output and civilian morale.

On 27 May 'Bomber' Harris issued an order to all his heavy bomber groups in which plans were outlined for the destruction of Hamburg using all of the RAF's available heavy bomber squadrons, which included the nine Stirling units in No 3 Group. A series of maximum effort raids were to be flown by night, augmented during daylight with attacks by heavy bombers of the USAAF's Eighth Air Force.

Hamburg was an important choice as a target for two tactical reasons. Firstly, although it was beyond Oboe range, the city's location at the mouth of the river Elbe meant it would show up clearly on H2S radar screens (although this was of little help to the Stirling crews as their aircraft were not so equipped). Secondly, the city was defended by 15 radar-equipped defence boxes and nightfighter stations in the Kammhuber Line (the Allied name given to the German night air



Hamburg burns. This photograph of the urban district of Wandsbek was taken on 27 July as the second of the RAF's three devastating fire raids was unfolding. Within minutes a terrific firestorm was whipped up that burned the heart out of the historic port city

defence system established in July 1940 by Oberst Josef Kammhuber), which meant it was an ideal proving ground for the RAF's top secret new radar jamming device, codenamed 'Window'.

The first raid on the city came on the night of 24/25 July when a force of 791 bombers – 354 Lancasters, 239 Halifaxes, 120 Stirlings and 68 Wellingtons – headed for Hamburg. Over the North Sea, bundles of 'Window' were shovelled down the flare chutes of each aircraft as it approached Hamburg, and as predicted the German early warning radar systems fell into disarray. The raid was over in an hour, with more than 2396 tons of bombs being dropped on the undefended city. Thanks to the 'Window' effect, only 12 bombers failed to return, including three Stirlings – No 75 (NZ) Sqn's EE890, flown by WO H Nicol, No 214 Sqn's EE902, flown by Plt Off R W Belshaw, and No 218 Sqn's BF567, flown by the squadron CO, Wg Cdr Don Saville, which was attacked by a nightfighter and partially abandoned before crashing near Neumünster. Only the navigator, Flg Off Cedric Eyre, survived.

Essen was on the receiving end of Bomber Command's squadrons on the night of 25/26 July when 705 aircraft hit the city while the surprise effect of 'Window' was still fresh. Stirlings fared badly, with seven aircraft being amongst the 26 bombers that failed to return, including three from No 620 Sqn – BF511, flown by Sgt J G Patteson RCAF, EE906, flown by Sgt J R G MacDonald RCAF, and EH924, flown by Sgt J D Rathbone.

For the citizens of Hamburg, late July had been far hotter than expected and they found themselves sweltering in a freak heatwave. The weather on the 27th was far warmer than on previous days, and that night Harris ordered 727 bombers to attack the city using much the same tactics as had been employed on the 24th/25th. For operational reasons, the proportion of incendiary to high explosive carried by the Stirlings and Halifaxes was increased, a decision that wrought even further and unexpected destruction than before.

Flt Sgt 'Speedy' Williams' No 75 (NZ) Sqn crew in EH936/W took 20 SBCs with them that night. Flight engineer Chris Dickenson recorded in his log book 'smoke up to 16,000 ft'. The combination of the high air temperature caused by the heatwave, low humidity and concentrated bombing caused a large number of fires to take hold, which soon joined together and sucked in all available oxygen with the force of a storm, with the resulting conflagration becoming known as a 'firestorm'. Some 2300 tons of bombs caused it to rage out of control for several hours, and the conflagration only subsided when all combustible material had been burned to ashes. About 40,000 inhabitants died in the firestorm, and in the days that followed 1.2 million people fled the city. Chris Dickenson remembered;

'We were not aware at that time of the firestorm, but we did realise that the target was well and truly alight, for as we looked back even halfway across the North Sea we could see the smoke.'

At 17 aircraft, the losses were very light on the second raid, representing a 2.2 per cent casualty rate. Only one Stirling failed to return, and that was No 15 Sqn's EH893, flown by Flt Lt J R Childs.

A third night attack on the still burning city was mounted on 29/30 July by 777 aircraft, the very heavy bombing causing widespread fires to take hold, but mercifully for those who were left in Hamburg no firestorm developed. By now the city's defences had recovered from their initial paralysis, with nightfighters and flak claiming 28 of the attacking force. For Bomber Command's statisticians in the Operational Research Section, this was still an acceptable level of losses at 3.6 per cent of the force, of which four were Stirlings – No 7 Sqn's EF364, flown by Plt Off A L Forbes RCAF; No 214 Sqn's EF407, flown by Flg Off H P Shann RCAF; and No 218 Sqn's BF578, flown by Sgt R.S. Pickard, and EE895, flown by Sgt J Clark.

The fourth and final raid in this devastating series of attacks was launched on the night of 2/3 August by 740 aircraft (329 Lancasters, 235 Halifaxes, 105 Stirlings, 66 Wellingtons and five Mosquitoes). Chris Dickenson recorded the 5.5-hour trip in his log book, 'Target Hamburg – 16 cans incendiaries. Flew in electrical storm for two hours – 15,000ft, lost 5000ft, bad icing – came out over Sylt. Poor concentration'.

When a large thunderstorm over Germany produced towering cloud formations that reached up to 20,000 ft, the raid soon turned into a disaster for the RAF. Many of the attacking force turned back early or, like the Stirlings, bombed alternative targets because of their inferior height performance. Of the 30 aircraft lost, some undoubtedly succumbed to the dreadful weather conditions. Three Stirlings were among the missing, No 75 (NZ) Sqn's BF577, flown by Flt Sgt J A Couper RNZAF, and EH928, flown by Plt Off C P Baillie (both of these aircraft fell victim to nightfighters), while No 218 Sqn's EF409, flown by Sgt A A R McGarvey, iced up and crashed in the sea off Wilhelmshaven. McGarvey and one other survived.

More than 8600 tons of bombs had been dropped on Hamburg in the four raids. Together, they demonstrated the devastating effects of sustained area bombing and came close to causing panic among the Nazi hierarchy. Reich Armament Minister Albert Speer stated that the effects of these raids could only be compared to a major earthquake, and that further heavy attacks against six more German cities would have brought Germany to its knees. However, 'Bomber' Harris failed to seize this opportunity, loathe to risk his crews returning time and again to the same targets.

PEENEMÜNDE

The German research establishment at Peenemünde on the Baltic coast was where the V2 rocket was built and tested under conditions of great secrecy. Hitler hoped the V2 – the world's first operational ballistic missile – would change the course of the war in Germany's favour and bring victory. Recognising that its development had to be stopped at all costs, Bomber Command planned a precision raid to destroy Peenemünde and hopefully halt the V2 programme. The attack was planned for 17/18 August and was unique in several respects – it was a *Goodwood* operation, which was the codename for 'maximum effort', and the only occasion in the second half of World War 2

when every heavy bomber squadron in Bomber Command joined together to launch a precision night raid on a small target. It was also the first time that the PFF used a Master Bomber to control a large bombing raid.

The previous night, 16/17 August, had seen Bomber Command launch an attack on Turin by 154 Stirlings, Halifaxes and Lancasters, the majority of which (103 aircraft) were Stirlings. Four aircraft were lost, including one Stirling, but it was a successful raid that caused damage to the Fiat motor works. However, after the long flight home again, the No 3 Group Stirling squadrons found their airfields closed by early morning fog and aircraft were diverted all over southern England. These diversions were to cause a serious reduction in the number of aircraft that could be sent to Peenemünde.

The diversion airfields were ordered to return the Stirlings to their bases as quickly as possible, but the fog lingered at many sites long into the morning. This in turn meant that many of the diverted Stirlings were very late home, with exhausted crews and many aircraft suffering from mechanical problems. As a direct result of this, No fewer than 61 aircraft failed to make it onto No 3 Group's battle order for Peenemünde. This was the final line-up for the Stirling squadrons involved in the operation – No 15 Sqn, five aircraft; No 75 (NZ) Sqn, 12 aircraft; No 90 Sqn, 15 aircraft; No 149 Sqn, two aircraft; No 199 Sqn, two aircraft; No 214 Sqn, seven aircraft; No 218 Sqn, five aircraft; No 620 Sqn, five aircraft; and No 622 Sqn, one aircraft.

In the end, 596 aircraft – 324 Lancasters, 218 Halifaxes and 54 Stirlings – took off to attack Peenemünde, which was found without difficulty in bright moonlight. The Stirlings shared the first wave of the attack with Halifaxes of No 4 Group, but owing to the former's slower rate of climb they were the first of the attacking force to take off. The first wave of bombers was over the target between 0015 and 0030 hrs, with the third and final wave delivering its attack between 0043 and 0055 hrs.

With accurate marking by the Pathfinders, 1800 tons of mostly high explosive bombs were rained on the research establishment, setting back the V2 programme by some two months and reducing the magnitude of the eventual rocket attacks on southern Britain. Losses were high at 40 aircraft, including two Stirlings, but the raid planners deemed it an acceptable price to pay for such a successful attack on this important target. No 15 Sqn lost EE908 (flown by Flt Sgt R Grundy, and he and two other crew members were killed), while No 620 Sqn's EF457 (flown by Sqn Ldr A D Lambert) failed to return. Lambert and four crew survived to become PoWs.

BATTLE OF BERLIN

Towards the end of August 'Bomber' Harris launched the first raid of what became known as the Battle of Berlin. His belief that he could bring the Third Reich to its knees by a series of concentrated attacks on its capital was translated into action on 23/24 August in the first of 34 major raids on 'The Big City', as it was known to RAF aircrew, as well as raids on other principal German cities. The campaign continued through the autumn and into the bitter winter months of 1943-44. The eight-hour trip, which was made in total darkness and freezing temperatures, was at the extreme range of the better performing Lancaster and the almost adequate

Merlin-engined Halifax, but for the Stirling it was pushing at the very edges of its performance and endurance envelopes.

Berlin was attacked three times between 23 August and 4 September, but the results of these initial raids were nowhere near comparable to the recent devastation inflicted on Hamburg. Casualties among the squadrons were high at 125 aircraft lost from 1669 sorties flown, representing an attrition rate of 7.5 per cent.

Stirlings and crews of No 90 Sqn lined up at Wratting Common before the Berlin raid of 31 August/1 September 1943. From the 106 Stirlings that were despatched that night to 'The Big City', 17 failed to return, including one aircraft from No 90 Sqn

In the first attack in the Berlin series on 23/24 August, 727 bombers, including 124 Stirlings, raided the Nazi capital, but bombing was inaccurate. Nevertheless, 854 people were killed. Sixteen Stirlings were among the 56 aircraft downed that night, representing Bomber Command's greatest loss of the war in one night to date. The Stirlings lost were as follows – No 15 Sqn's EH875, flown by Plt Off E R I Cornell; No 75 (NZ) Sqn's BF465, flown by Plt Off A Rankin, BF564, flown by Plt Off A J L Sedunary RAAF, and EE938, flown by WO T Fear; No 90 Sqn's BK779, flown by Sgt F W Mulvey RCAF, and EH937, flown by Flt Sgt K W Longmore RAAF; No 149 Sqn's BK765, flown by Sqn Ldr J J E Mahoney, and EE894, flown by Flt Sgt A E May; No 199 Sqn's EH927, flown by Plt Off R J Widdecombe, and EH934, flown by Plt Off R G Fisher RAAF; No 214 Sqn's EH895, flown by Plt Off R C Hartwell; No 218 Sqn's BF522, flown by Flt Sgt W Martin RCAF, and EH986, flown by Flt Sgt W S Williams; No 620 Sqn's BK801, flown by Plt Off G W MacDonald; No 622 Sqn's BF521, flown by Flt Sgt N C Rollett RNZAF; and No 623 Sqn's EH925, flown by Sqn Ldr W H B Hiles.

When his No 75 (NZ) Sqn Stirling (EE878) was attacked by a nightfighter over Berlin on 31 August, Flt Sgt Doug Henley RNZAF struggled valiantly to bring his aircraft home again, but the badly damaged bomber crashed in the hills above the Ahr valley in western Germany, claiming his life and those of his navigator and bomb aimer. The remaining crewmen managed to parachute to safety

One week later, on 31 August/1 September, 622 aircraft converged on Berlin for what became yet another unsatisfactory raid as far as Bomber Command was concerned. Material damage was slight and only 68 civilians were killed. However, the squadrons fared very badly, with an attrition percentage rate close to that of the previous Berlin raid – 47 aircraft, including 17 Stirlings, failed to return, most of which were shot down by nightfighters hunting over 'The Big City'. The following aircraft, which represented a massive 16 per cent of the Stirling force, never made it home – No 15 Sqn's EE912, flown by Sgt J E Milner RCAF; No 75 (NZ) Sqn's EE878, flown by Plt Off D C Henley RNZAF, EE918, flown by Flt Sgt E J Roberts RNZAF, EF491, flown by Flt Sgt H Batger, EF501, flown by Flt Lt S A McGregor RNZAF, and EH905, flown by Plt Off G V Helm RNZAF;

Sqn Ldr J Martin's No 622 Sqn Stirling crew are debriefed by an intelligence officer at Mildenhall after returning from the raid on Berlin of 22/23 November 1943. Some 764 aircraft took part in the attack, of which 50 were Stirlings. This proved to be the last time that Bomber Command's Stirling units would operate over Germany

No 90 Sqn's EE871, flown by WO M P Callaway; No 149 Sqn's EE879, flown by Flt Sgt H A Moore; No 196 Sqn's EH961, flown by Sgt J Griffith; No 199 Sqn's EE946, flown by Flt Sgt A J Davey RAAF; No 214 Sqn's EE959, flown by Flt Lt F Lee, EE970, flown by Plt Off K J Simpson RAAF, and EF401, flown by Flt Sgt R C Chislett; No 620 Sqn's EH946, flown by Plt Off M J Campbell RNZAF; No 622 Sqn's EF119, flown by Flg Off G F Toy, and MZ264, flown by Flt Sgt J M Young; and No 623 Sqn's EE949, flown by unit CO Wg Cdr E J Little.

Berlin was revisited on 3/4 September, but the attacking force of 316 bombers was restricted to Lancasters and four Mosquitoes owing to the unsustainably high casualty rates among the Stirling and Halifax squadrons on the previous raids. By this time No 7 Sqn had replaced its last Stirlings with Lancasters. Although Stirlings continued to be used on raids against other cities, towards the end of October they were no longer appearing on the nightly battle orders for German targets like Kassel, Frankfurt, Stuttgart and Düsseldorf.

When 764 aircraft raided Berlin on 22/23 November it was the biggest force yet sent to the German capital, and it provided Harris with his first real success in the Battle of Berlin. Some 2501 tons of bombs rained down on 'The Big City' for the loss of 26 aircraft, of which five were Stirlings – No 75 (NZ) Sqn's EF148, flown by Flt Sgt J C Turner RNZAF, and LJ453, flown by Flt Sgt A R Single RAAF; and No 214 Sqn's EF445, flown by Flt Sgt G A Atkinson. No 218 Sqn fared particularly badly, for of the nine crews that had been briefed, five returned early, three attacked the primary target and one, skippered by Sqn Ldr Garfield Prior (in EF810), crashed in the target area, killing the crew. Finally, No 622 Sqn lost EF150, flown by Flt Lt K H Denham.

As part of the broader canvas of events, of the 50 Stirlings despatched that night 12 had returned early and five failed to return. In three of the five Battle of Berlin raids undertaken so far, 280 Stirling sorties had been flown, 46 aircraft had made early returns and 37 had been lost, which represented a casualty rate of 13.2 per cent of those despatched, and 15.2 per cent of those that had reached the shores of occupied Europe. As was seen earlier in the year during the Ruhr offensive, Stirling losses *pro rata* were much higher than either the Lancaster or Halifax. Such heavy attrition rates were clearly unsustainable and 'Bomber' Harris was quick to recognise this and act accordingly.

The Stirling's poor altitude performance meant it was never able to operate at the greater heights of the Halifax and Lancaster, and therefore was not able to enjoy the full protective cover of the bomber stream. Thus, heavier losses from flak and fighters were the end result. This factor, combined with its poorer serviceability and load carrying capability – particularly to a target like Berlin that lay at the extreme range of the Stirling, which saw bombs sacrificed for more fuel – meant that Harris withdrew No 3 Group's Stirlings from the Main Force and they never flew over Germany again. This was a blow to the squadrons of No 3 Group, whose aircrews had always played a full part in bomber operations. Now they had been relegated to second-line operations against 'soft' targets, and mine-laying, during which time they began the gradual conversion to Lancasters.

A Stirling of No 149 Sqn is loaded with A Mk I-IV 1500-lb sea mines at Lakenheath in March 1944. Along with the smaller 1000-lb A Mk V, these were the RAF's most widely used aerial mines in World War 2. They incorporated a variety of different triggering devices that included magnetic and acoustic, or a combination of both. A Stirling could carry up to six A Mk I-IV mines

Ironically, the high casualty rate of the Stirling transferred itself to the Halifax squadrons of Nos 4 and 6 (RCAF) Groups. With the Stirlings gone, they became the lowest-flying bombers in the stream and therefore prey to all that the ferocious German defences could throw at them.

'GARDENING'

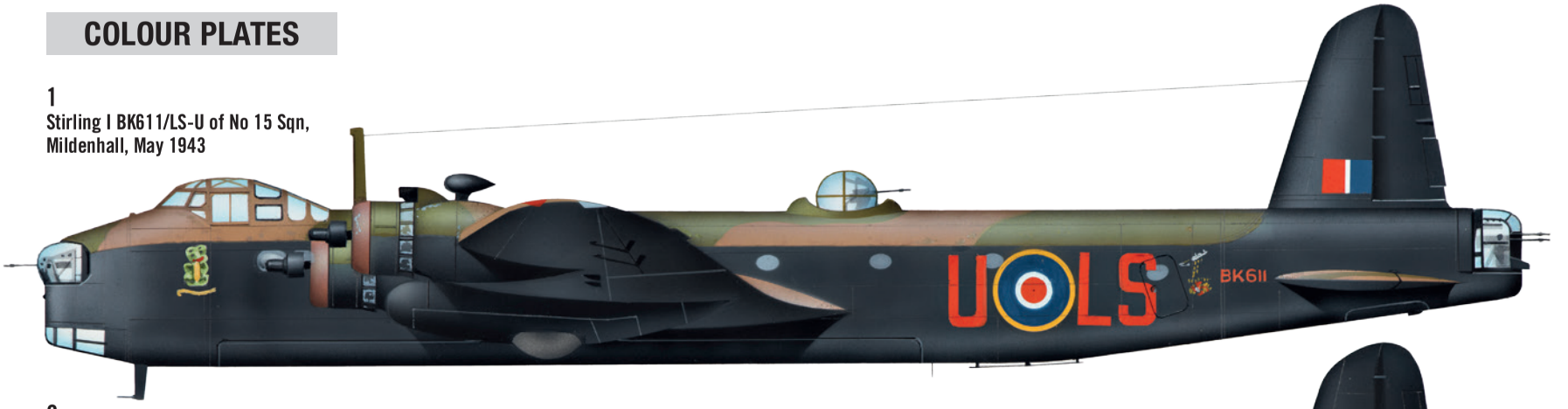
While the main focus of its squadrons had been on targeting German cities, Bomber Command had also been active laying aerial mines in enemy coastal waters and estuaries since the summer of 1940, with the aim of disrupting sea traffic. The Germans had been doing likewise around the British coast from the beginning of the war. Euphemistically called 'gardening' by the RAF, with the mines themselves referred to as 'vegetables', Bomber Command 'planted its produce' in some 80 appropriately codenamed 'gardens' that included 'Pumpkins', 'Broccoli' and 'Asparagus' off the Danish Great Belt, 'Artichokes' off Lorient, 'Deodar' off Bordeaux and 'Silverthorne' in the Kattegat Channel. The favoured 'plots' for 'gardening' stretched from the Norway/Baltic seas passage through the Kattegat to the sea lanes around northern Germany, Denmark, Holland, Belgium, France and the Bay of Biscay, as well as the approaches to the Atlantic U-boat bases and rivers and estuaries.

On 25 March 1942 responsibility for airborne mining operations was officially passed from Coastal Command to Bomber Command, although the Admiralty retained overall responsibility for all sea mining. Hitherto, airborne mining had been carried out exclusively by No 5 Group, but realising its importance 'Bomber' Harris opened it up to all groups in Bomber Command.

Initially, the Stirling was only able to carry four mines in its fuselage bomb-bay, but after the bomb doors had been modified six could be carried, compared to the Manchester and Halifax (*text continues on page 43*)

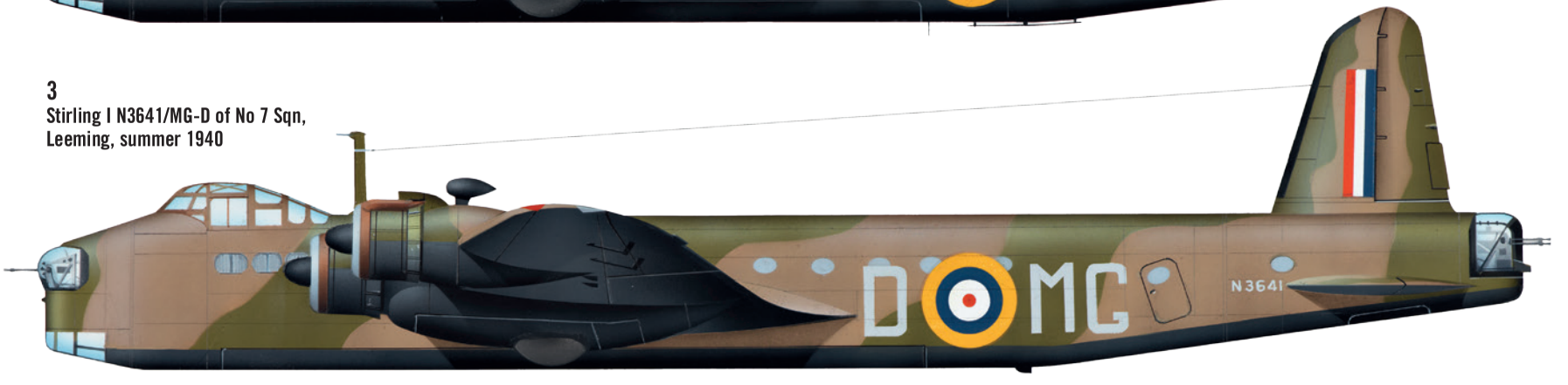
COLOUR PLATES

1
Stirling I BK611/LS-U of No 15 Sqn,
Mildenhall, May 1943

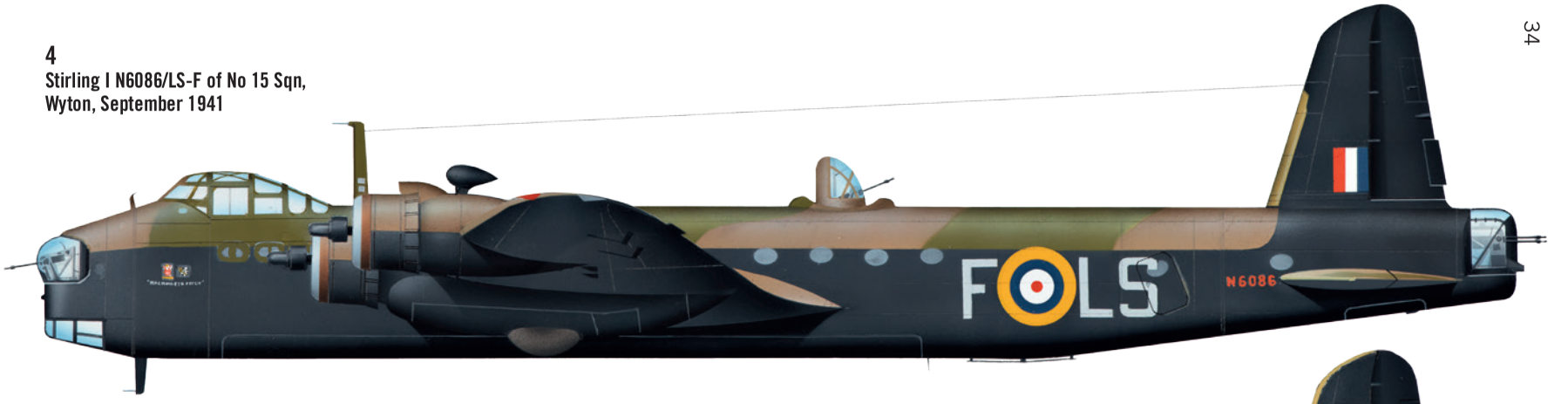


2
Stirling I N3637/MG-K of No 7 Sqn,
Oakington, early 1941

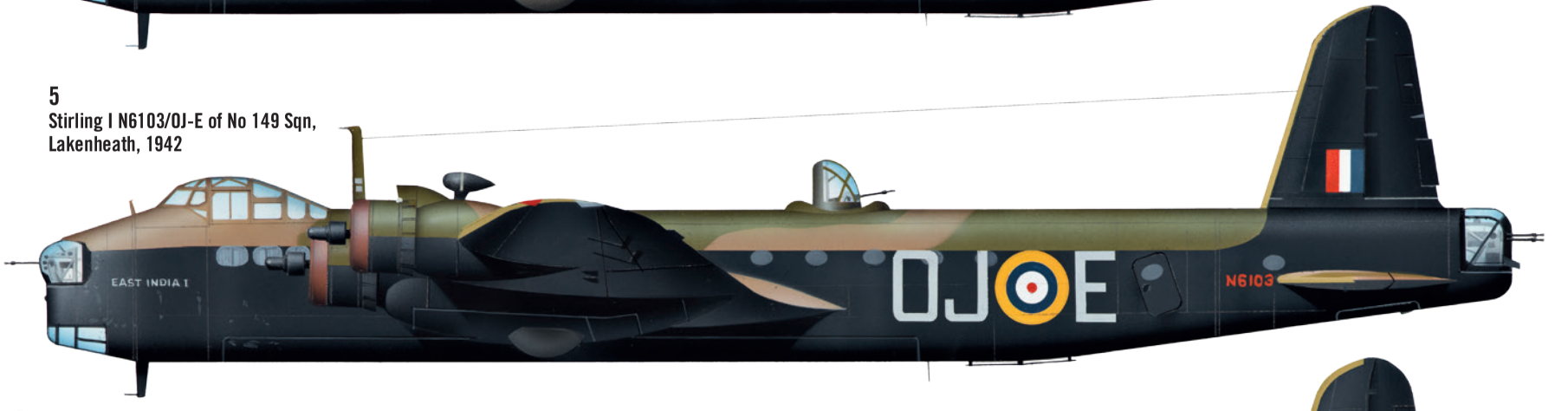
3
Stirling I N3641/MG-D of No 7 Sqn,
Leeming, summer 1940



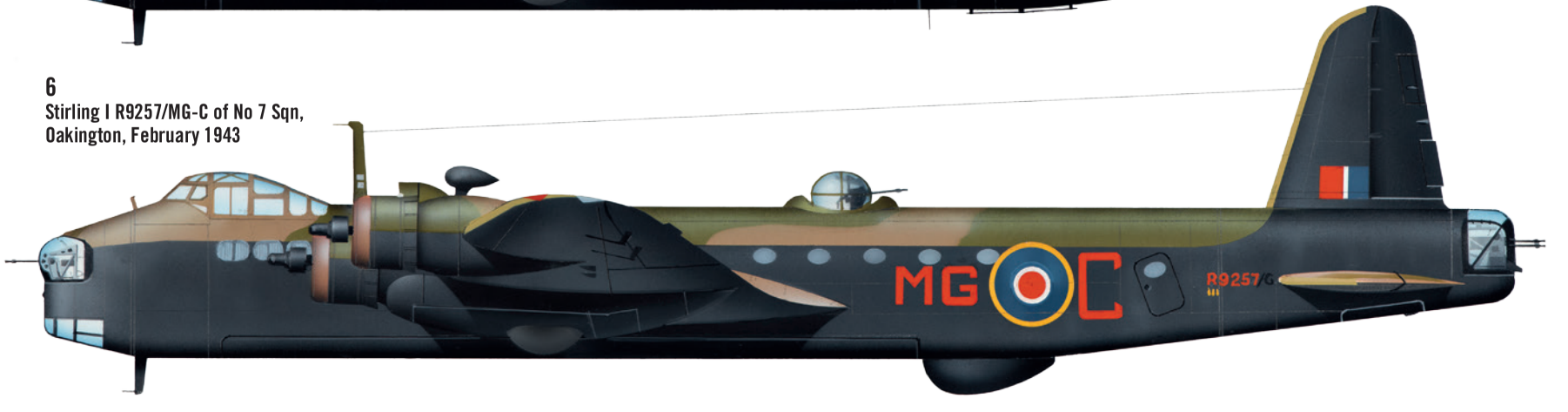
4
Stirling I N6086/LS-F of No 15 Sqn,
Wyton, September 1941



5
Stirling I N6103/OJ-E of No 149 Sqn,
Lakenheath, 1942

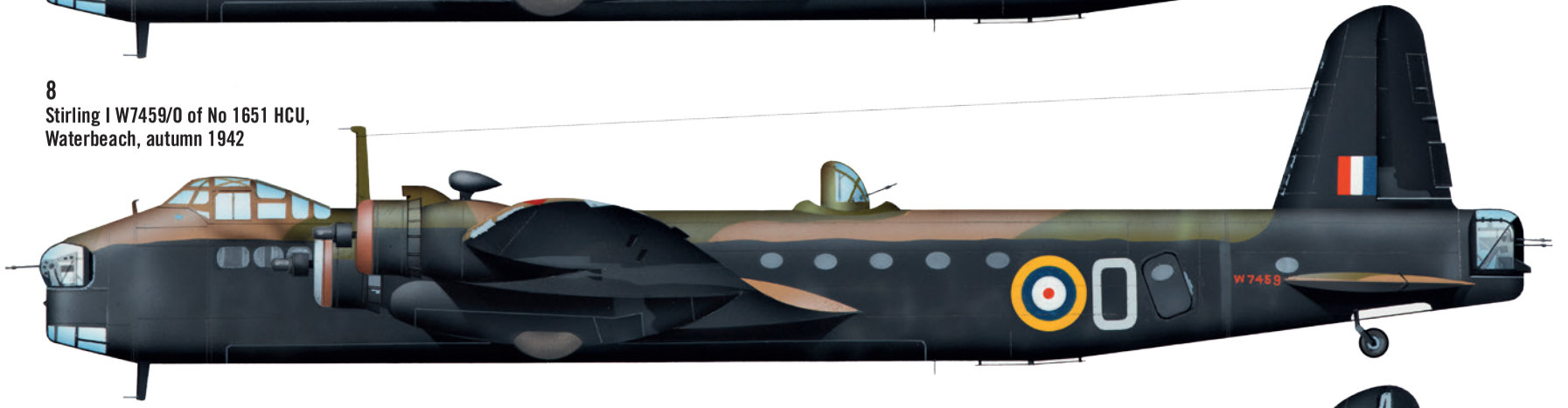


6
Stirling I R9257/MG-C of No 7 Sqn,
Oakington, February 1943

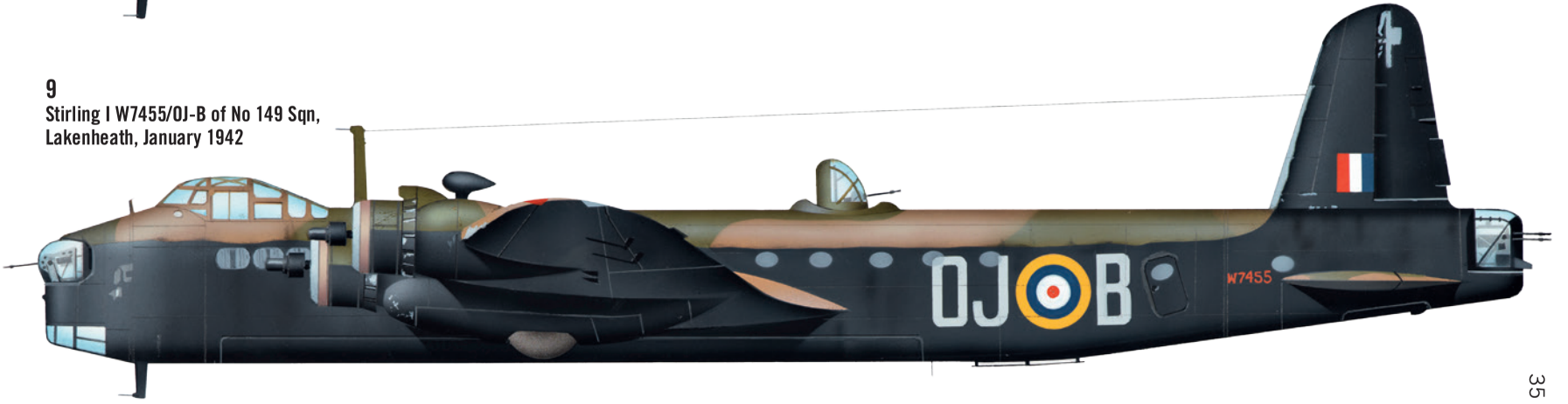


7
Stirling I W7444/MG-G of No 7 Sqn,
Oakington, late 1941

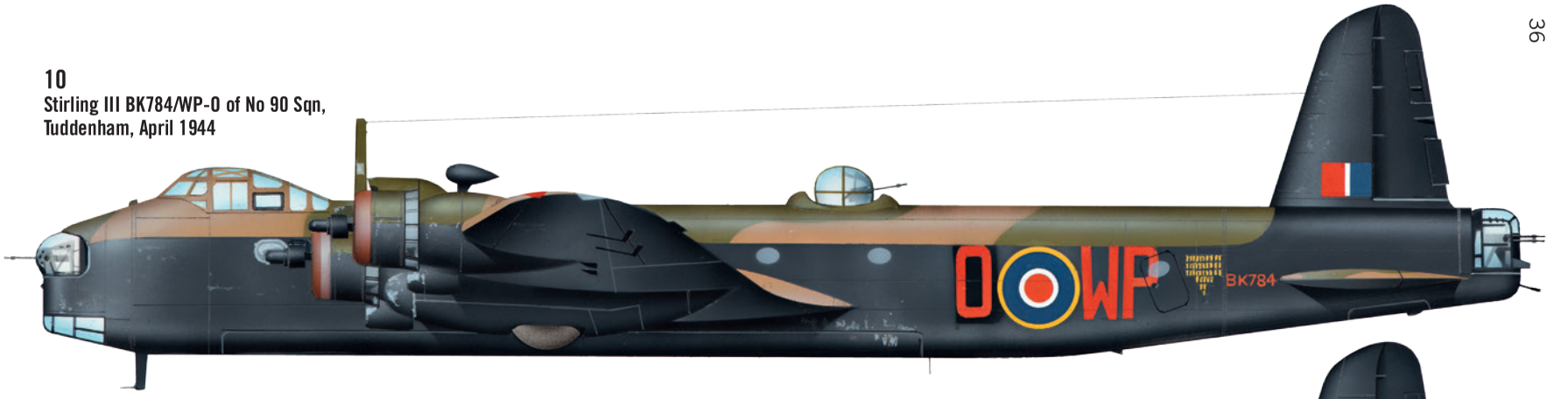
8
Stirling I W7459/O of No 1651 HCU,
Waterbeach, autumn 1942



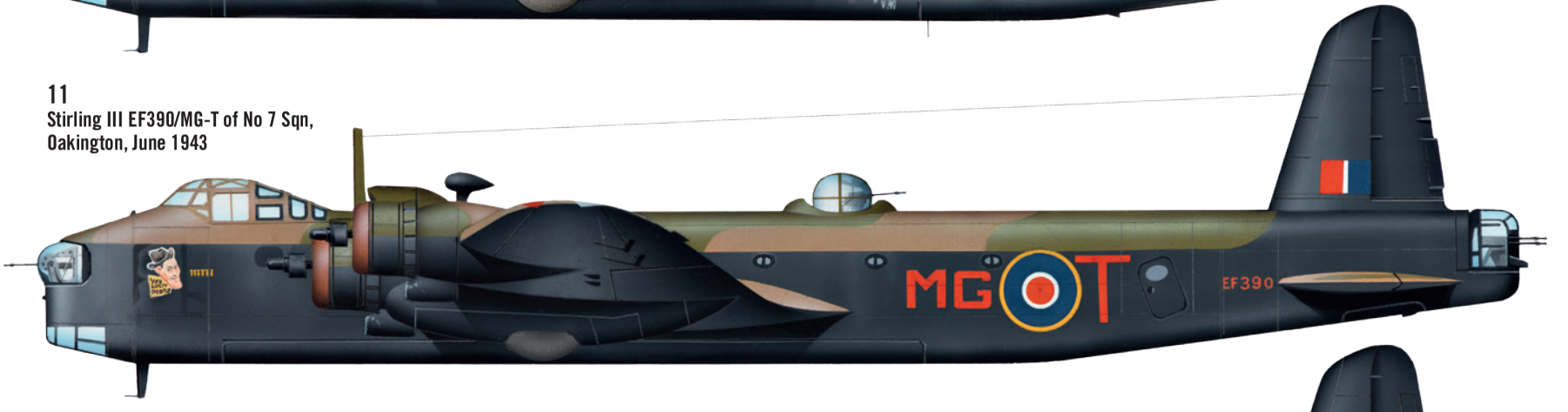
9
Stirling I W7455/OJ-B of No 149 Sqn,
Lakenheath, January 1942



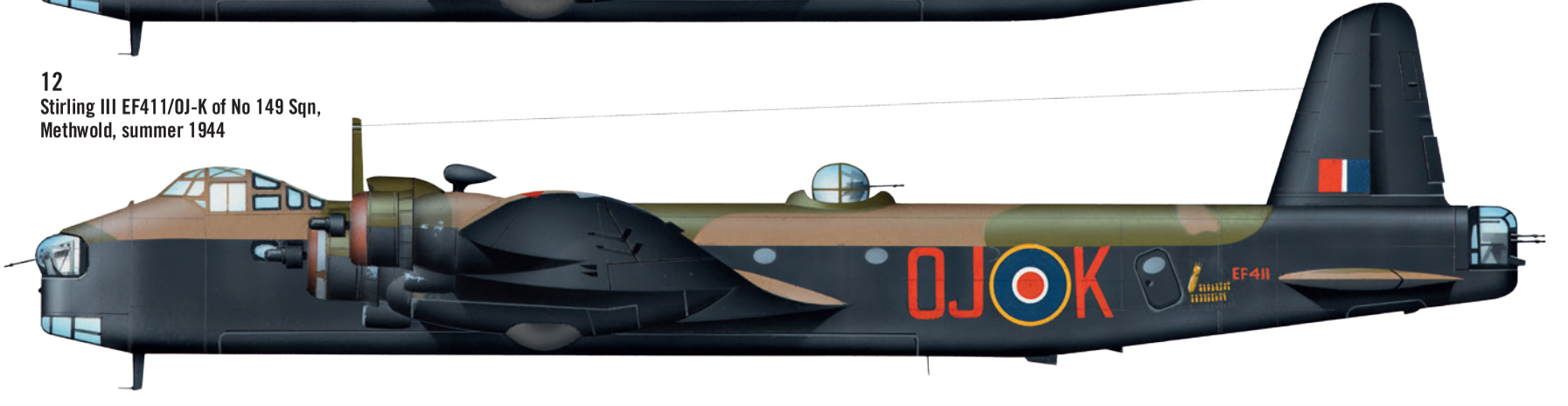
10
Stirling III BK784/WP-O of No 90 Sqn,
Tuddenham, April 1944



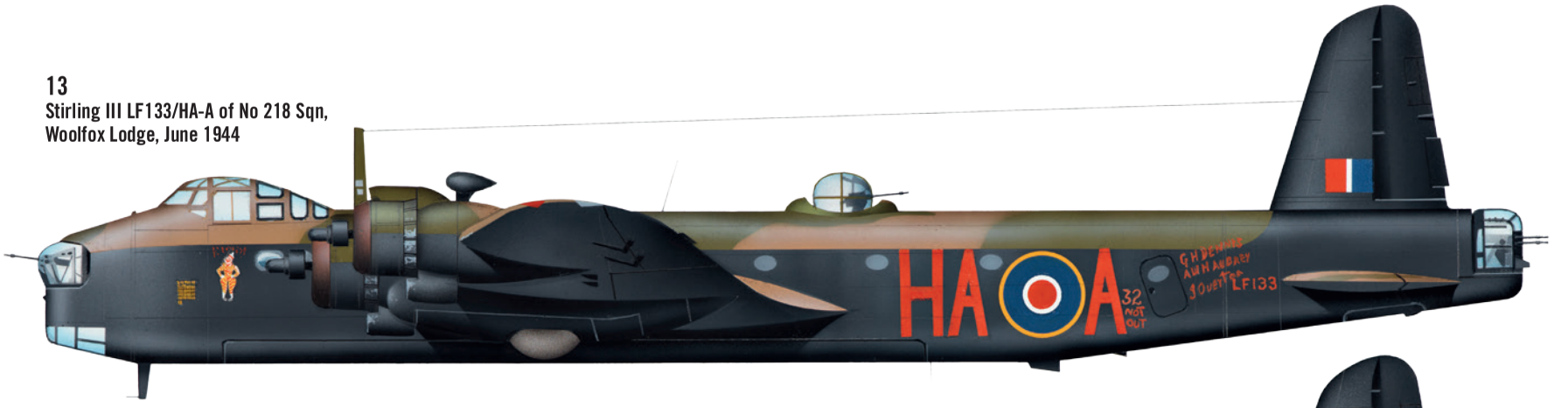
11
Stirling III EF390/MG-T of No 7 Sqn,
Oakington, June 1943



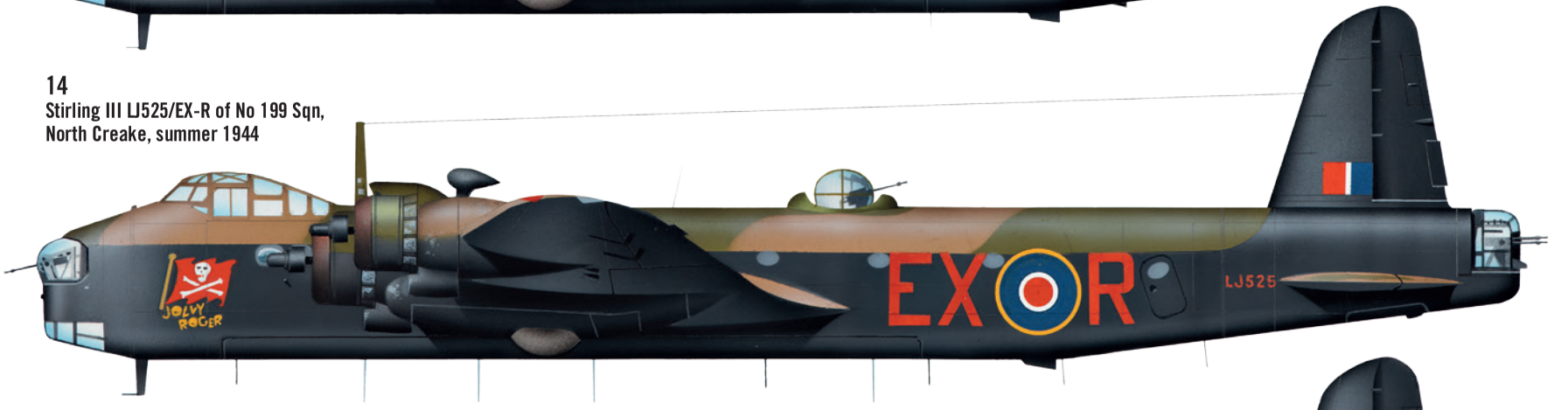
12
Stirling III EF411/OJ-K of No 149 Sqn,
Methwold, summer 1944



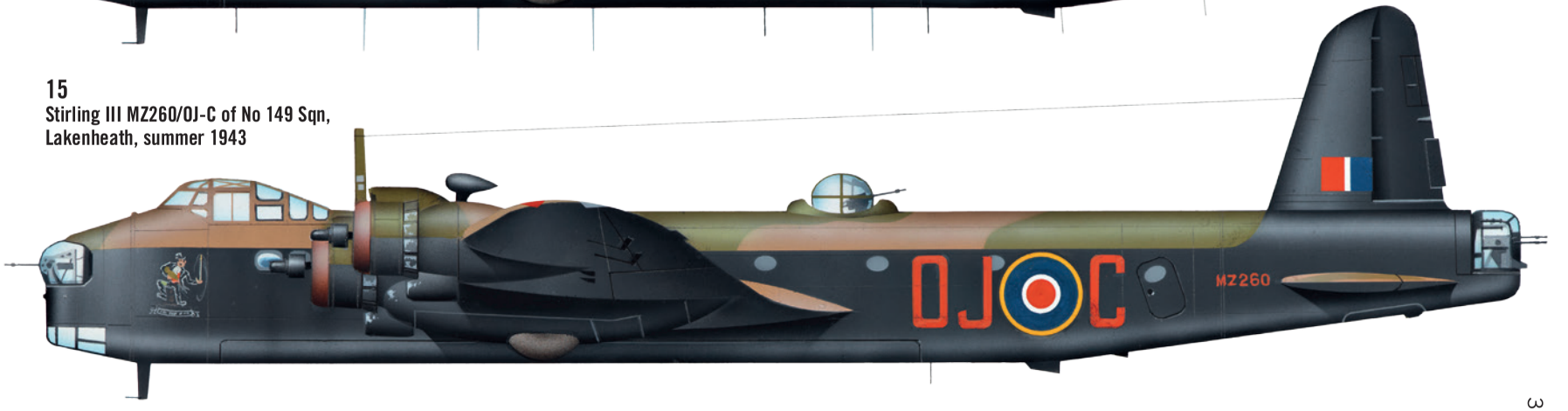
13
Stirling III LF133/HA-A of No 218 Sqn,
Woolfox Lodge, June 1944



14
Stirling III LJ525/EX-R of No 199 Sqn,
North Creake, summer 1944

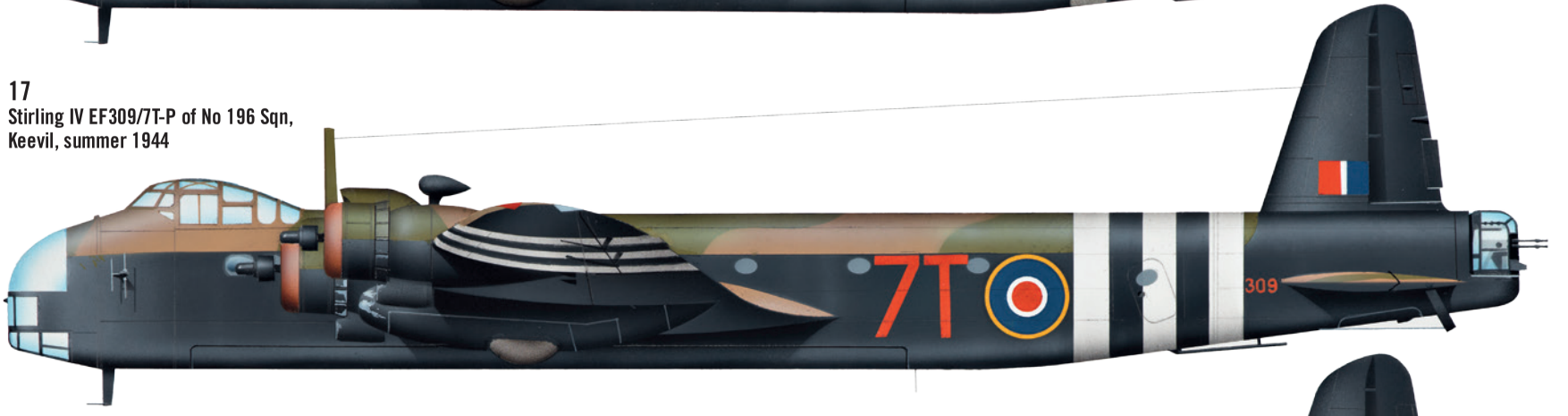


15
Stirling III MZ260/OJ-C of No 149 Sqn,
Lakenheath, summer 1943

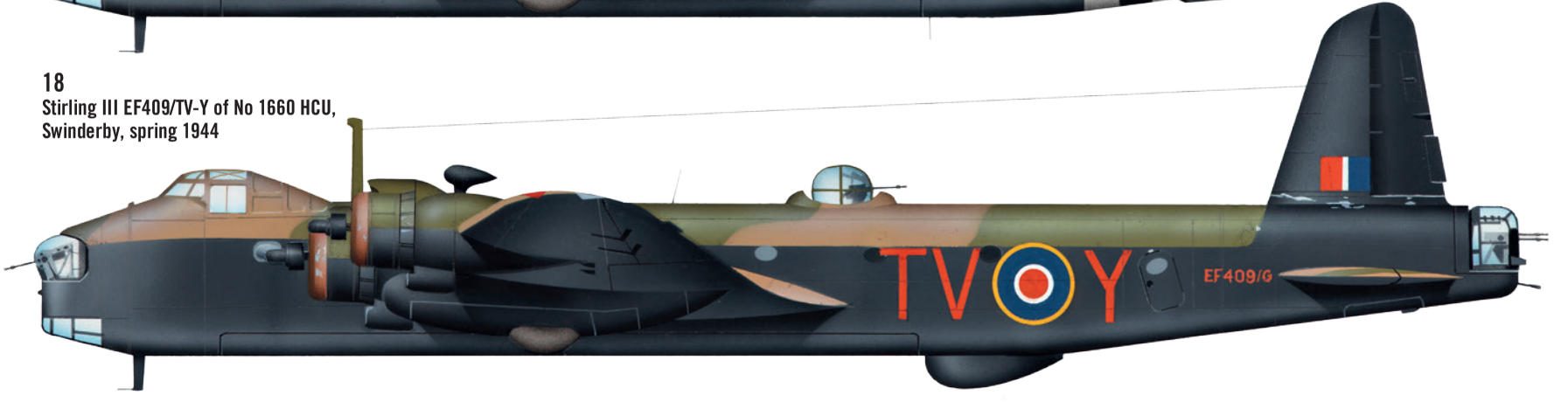


16
Stirling IV EF267/5G of No 299 Sqn,
Keevil, June 1944

17
Stirling IV EF309/7T-P of No 196 Sqn,
Keevil, summer 1944



18
Stirling III EF409/TV-Y of No 1660 HCU,
Swinderby, spring 1944



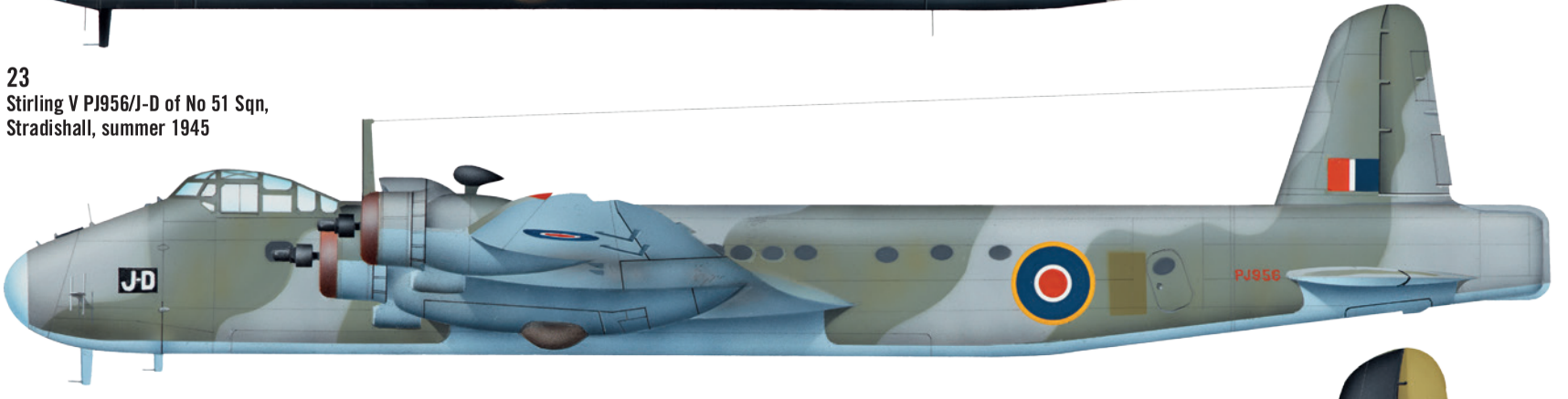
19
Stirling IV EF446/8E-O of No 295 Sqn, Rivenhall, spring 1945

20
Stirling IV LJ566/D4-Y of No 620 Sqn, Great Dunmow, spring 1945

21
Stirling IV LK292/E7-V of No 570 Sqn, Rivenhall, April 194

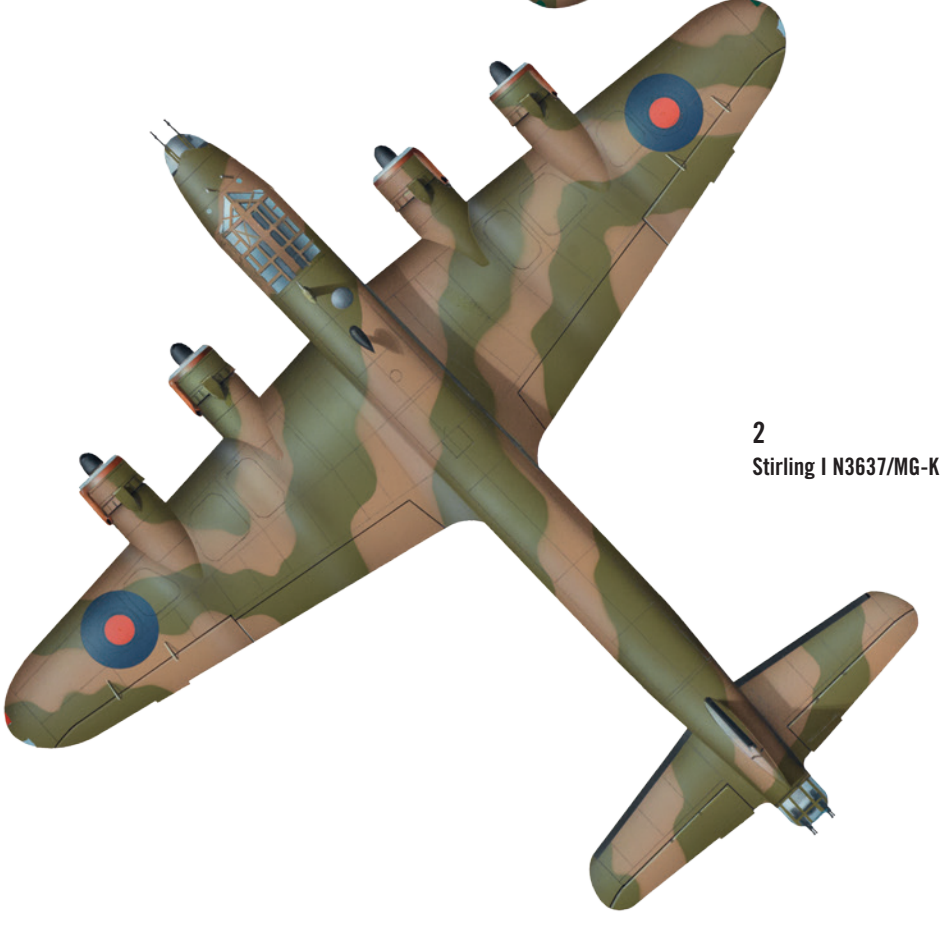
22
Stirling IV LK555/E7-S of No 570 Sqn,
Rivenhall, March 1945

23
Stirling V PJ956/J-D of No 51 Sqn,
Stradishall, summer 1945



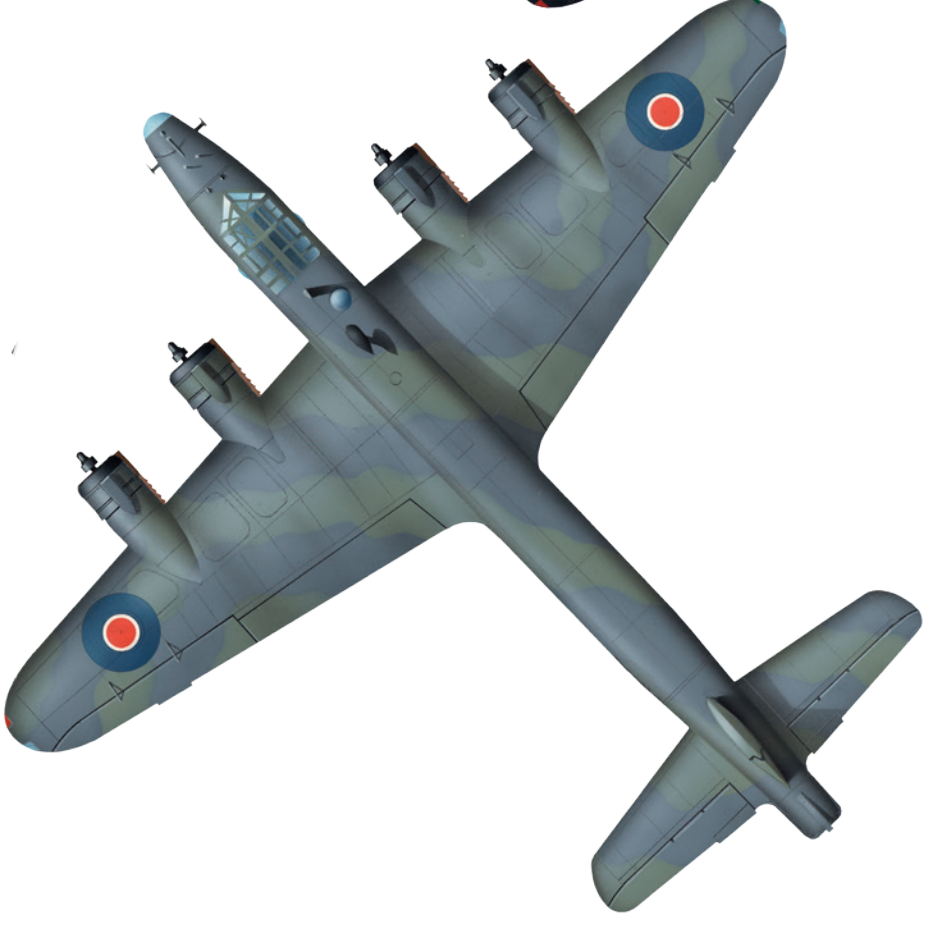
24
Stirling IV LK119/NF-R of No 138 Sqn,
Tempsford, January 1945

1
Stirling I BK611/LS-U of No 15 Sqn, Mildenhall, May 1943



2
Stirling I N3637/MG-K of No 7 Sqn, Oakington, early 1941

3
Stirling IV LJ566/D4-Y of No 620 Sqn,
Great Dunmow, spring 1945



4
Stirling V PJ956/J-D of No 51 Sqn,
Stradishall, summer 1945

that could carry four each, and the Wellington's two. Three crews from No 15 Sqn flew the first Stirling 'gardening' sorties on 23 March 1942 when they 'sowed vegetables' off the Brittany coast between Lorient and the Île de Groix. The next night saw three more crews from No 149 Sqn 'planting' mines in the same area. Mine-laying grew dramatically with an increase from 1055 mines laid in 1941 to 9574 in 1942.

Sgt Jack Nason was the observer in Flt Sgt Roy Woodhouse's No 149 Sqn crew flying in Stirling R9320. On 17 May 1942 they were one of five squadron crews briefed for a mine-laying operation in the 'Daffodils' area of the Baltic Sound;

'We were briefed on the morning of 17 May 1942 for a second mine-laying trip to the ferry route from [the German port town of] Warnemünde to Gedser in Denmark. Five Stirlings took off – only two returned. We were told later that all other squadrons were cancelled because of the weather. We had just got a new wing-co, Charlton-Jones – a keen type.

'We were to expect rain and ten-tenths cloud over the North Sea, clearing skies over Denmark and clear areas over the Baltic. We were to fly at 1000 ft over the North Sea, 400 ft over the nightfighter zone and up to 1000 ft to drop the mines. We stayed at 1000 ft to try and get a fix over the Danish coast and decided we were north of our projected track, so I gave the skipper a new course. It was pitch black over the Baltic so we dropped the mines by DR [dead reckoning] and turned for home, reducing height down to 400 ft.

'We still had 450 showing when we hit the sea! No wonder [our squadronmate, Sgt Jimmy] Jerman hit a hill! Five of us got out and into the dinghy. The tail broke off and we could hear the tail gunner shouting but we could not get to him in time. The flight engineer had no chance. Next morning, we were picked up by a Danish fishing boat sent out from Rødbyhavn by the German garrison. Two days later we were taken by train via Rostock – we had been there twice previously with bombs but could not see a brick out of place! – and Berlin to Frankfurt-am-Main, where we changed to a local train for Dulag-Luft. As we moved down the platform to find room in the local train a voice from one compartment shouted, "Come and join us in here!" It was Jimmy Jerman with all his crew.'

The two other No 149 Sqn crews lost that night were those of Sgt Jimmy Jerman (in N3752), who survived to become PoWs, and Plt Off Arthur Frost (in R9310), who perished when their Stirling was shot down into the sea. Also lost that night on the same operation was No 15 Sqn's second Stirling to bear the name 'MacRobert's Reply' (W7531), captained by Sqn Ldr J C Hall, which was set on fire by flak from German ships in the mine-laying area and crashed at Galsklint, one mile west of Middelfart in central Denmark. Only the rear gunner survived.

The crumpled wreckage of Sgt Jimmy Jerman's No 149 Sqn Stirling I N3752 lies spread over a hilltop near Åbenrå, in Denmark, where it crashed on 17 May 1942. The crew had been returning from a mine-laying sortie in the Heligoland/Frisian Islands area when they flew into a hill, either due to altimeter trouble or because of poor visibility. All the crew survived their experience to become PoWs

The year 1943 saw a further increase in the number of mines sown, but 'gardening' was certainly not an easier option than bombing German cities. In two consecutive nights, 27/28 and 28/29 April,

The fate of many RAF bomber aircraft in World War 2. This Stirling was ditched by its crew near the tiny island of Siø in the Danish South Funen archipelago between Tåsinge and Langeland. It is possibly No 218 Sqn's R9190/HA-E, which made a successful crash-landing there while on a 'gardening' sortie in the 'Geranium' area (Swindemünde, Germany) on 11/12 October 1942. R9190 had only been on the squadron since 16 September

Bomber Command flew its two biggest mine-laying operations of the war so far. However, the second night turned into a turkey shoot for the German defences when 207 aircraft – including 32 Stirlings of Nos 75, 90, 214 and 218 Sqns – laid 593 mines at low level in the river Elbe and the Great and Little Belts. Low cloud over the German and Danish coasts had forced the minelayers down to low-level in order to find their positions before 'planting' their 'vegetables', leaving them wide open to attack by light flak and nightfighters, which claimed eight Stirlings and the lives of 53 crew. The aircraft lost were No 75 (NZ) Sqn's R9290, flown by Flt Sgt A E Lewis RAAF, W7513, flown by Sgt K Halliburton RNZAF, BF467, flown by Plt Off D L Thompson RNZAF, and BK807, flown by Plt Off D V Hamer; No 90 Sqn's BF346, flown by Sqn Ldr R S May; and No 218 Sqn's BF447, flown by Plt Off D J Brown, EF356, flown by Sgt K S Hailey, and BF515, flown by Flt Lt G F Berridge.

Fifteen other bombers of assorted types were also lost in what proved to be the most costly mine-laying operation of the war.

Stirlings continued in their 'gardening' role until the summer of 1944 when No 218 Sqn flew the type's last ever mine-laying sorties on 23/24 July. The unit's destination was the Brest area on what was No 218 Sqn's eighth such operation that month to the port and its environs. Using the Gee-H navigation system to pinpoint their release point, two Stirlings – LJ449 (flown, appropriately, by Flt Lt R D Stirling RAAF) and EF207 (flown by Flg Off K Ellis) – laid ten mines from 14,000 ft in the early hours of the 24th. Both crews encountered heavy predicted flak and searchlights off the Pointe des Capucins at the mouth of the Gironde estuary but returned safely to Downham Market. No 218 Sqn flew its last Stirling sorties on 2 August before moving to Methwold, in Norfolk, where it began its conversion to Lancasters.

The impending replacement of the Stirlings in No 3 Group by Lancasters was heralded by the transfer of Nos 196 and 620 Sqns to No 93 Group in mid-November 1943, before their ultimate consignment to No 38 Group for the duration of the war. By September 1944 Stirlings had ceased to equip frontline squadrons in Bomber Command, although they continued to be used on some HCUs. The gradual conversion to Lancasters had begun in December 1943 when Stirlings from Nos 15 and 622 Sqns were replaced by Lancasters. No 214 Sqn converted to the Fortress II in February 1944, No 75 (NZ) Sqn flew its final Stirling sorties in April before converting to Lancasters, No 90 Sqn flew its last Stirling operation in June and converted to Lancasters, No 218 Sqn swapped its Stirlings for Lancasters in August and No 149 Sqn did the same the following month.

Skippered by Sqn Ldr John Overton, No 218 Sqn's LF133/HA-A participated in Operation *Glimmer* on D-Day, dropping 'Window' to simulate an invasion fleet as part of an elaborate deception plan to make the enemy think the actual landings would be made further up the Normandy coast. LF133 was photographed on a visit to the 34th Bomb Group base at Mendlesham, in Suffolk, in the summer of 1944, having just completed 32 operations (*Lewis Funk*)

CHAPTER THREE

CONFOUND AND DESTROY

North Creake, in Norfolk, was the wartime home for two of No 100 (Bomber Support) Group's heavy bomber units, Nos 199 (BS) and 171 (BS) Sqns, both of which operated Stirlings. It was located in the dead flat East Anglian countryside some three miles inland from the small sea port of Wells-next-the-Sea and in the middle of the Earl of Leicester's sprawling country estate at Holkham Hall. These two squadrons were part of a new and secret bomber group, No 100 (BS) Group, formed on 23 November 1943 by Bomber Command to support the RAF's night bomber offensive. This specialist group was an eclectic mix of heavy bombers, nightfighters and crews whose task it was to wield a host of newly invented electronic and radio countermeasures equipment to confound the German nightfighter and air defence systems, thereby reducing the losses inflicted on Bomber Command's squadrons by enemy action.

Using air and ground-based radar, homing and jamming equipment, as well as specialist radio and navigation aids, the group's bomber aircraft jammed and deceived the German defences, while its nightfighter intruder aircraft roamed the night skies over Europe seeking out and destroying enemy nightfighters. No 100 (BS) Group's motto summed up its mission – to 'Confound and Destroy'. Air Vice-Marshal Edward Addison was the group's only wartime commander during its short two-year existence. With a master's degree in electrical engineering, he was the ideal candidate for the job.

Initially, No 100 (BS) Group was involved in roving fighter intruder operations using Beaufighters and Mosquitoes to protect the bomber streams from enemy nightfighters. In time it came to include jamming and electronic countermeasures with aircraft like the Stirling, Halifax, Fortress and Liberator – all of them big bombers that had enough space inside to accommodate the racks of bulky electronic equipment, along with an additional dedicated crew member.

The first unit to arrive at North Creake was No 199 Sqn from Lakenheath on 1 May 1944, having been withdrawn from bombing operations with No 3 Group in preparation for its transfer to No 100 (BS) Group. Led by Wg Cdr N A N Bray until August, the squadron operated Stirling IIIs fitted with a whole suite of electronic jamming equipment codenamed 'Mandrel'. It flew regular Mandrel 'screens' at night either as cover to electronically 'mask' the presence of the Main Force or as a diversionary tactic to alert and distract the enemy defences from the Main Force with a spoof force elsewhere.

Several of the heavy bomber squadrons in No 100 (BS) Group carried an additional crew member to operate the electronic jamming equipment. He was known as a 'special operator' and was the eighth member in a crew of pilot, navigator, flight engineer, wireless operator and three air gunners. In No 199 (BS) Sqn, the special operator's job was to manage the array of Mandrel jamming equipment carried on board the Stirling, comprising three Mandrel I sets (each capable of jamming enemy early warning (EW) radar in six 10-MHz bands between 88 to 142 MHz), one American Mandrel and four Mandrel IIIs (for spot-jamming enemy EW radar in the 148-196 MHz waveband). The eight Mandrel sets were installed along the starboard side of the fuselage in the space between the two wing spars, together with a seat and a table for the operator. Each aircraft bristled with Mandrel aerials along the underside of the fuselage – three Type 90 for the Mandrel III sets and five VHF for the Mandrel I and American Mandrel. All this electronic equipment was hungry for power, which meant an alternator had to be fitted to each outboard engine to supply the necessary current.

The Mandrel screen Stirlings flew in pairs at their maximum operating height of about 15,000 ft in order to give full frequency band coverage. Precise station keeping was absolutely vital in Mandrel operations so high standards of flying were required of the pilot and dead reckoning by the navigator. To achieve this precision, the Gee navigational aid was an essential piece of equipment and the special operator was also provided with his own Gee indicator (the navigator had one too) mounted with his Mandrel sets. However, Mandrel could sometimes work against the screen aircraft when it had a tendency to jam some ground-based Gee chains.

Owing to the top secret nature of No 199 Sqn's duties, photographs of its aircraft are hard to come by. The unit's Stirling III LJ514/EX-B is seen here on an RCM sortie during 1944. By the time that 'B-Beer' was eventually struck off charge by the RAF on 2 May 1945, it had flown more than 70 operational sorties. Just visible beneath the fuselage roundel is one of a pair of 'Window' dispenser chutes.

On 10 May 1944 No 199 (BS) Sqn received its first Stirling IIIs, newly fitted out with the tools of the jamming trade – Mandrel, Shiver (a device for jamming enemy *Würzburg* ground control intercept and gun-laying radar in the 53 cm band) and the hyperbolic navigation aid Gee. The Air Ministry wanted to maintain the maximum effectiveness of Mandrel by not revealing it to the enemy before it needed to, so it was not until the eve of D-Day, 5 June, that the squadron commenced operations with the equipment. Allied D-Day planners sought to dupe the German High Command into thinking that the invasion was going to take place either near Le Havre or Boulogne, convincing them to concentrate their forces in these areas, instead of further down the coast between the Orne estuary and Carentan. Two 'ghost' armadas sailing sedately across the English Channel were created using electronic trickery devised by scientists at the Telecommunications Research Establishment – only it was aircraft and not ships that created the spoof invasion force.

Operating in conjunction with eight Lancasters of No 617 Sqn (from No 5 Group), flying carefully planned tracks off the coast of upper Normandy while dropping 'Window' to simulate an invasion fleet (Operation *Taxable*), a smaller force of six Stirlings from No 218 Sqn (Operation *Glimmer*) flew a creeping 'racetrack' pattern further up the French coast while also dropping 'Window'. Meanwhile, 16 Stirlings from No 199 (BS) Sqn and four B-17 Flying Fortresses from the USAAF's 803rd Bomb Squadron (which was seconded to No 100 (BS) Group by the Eighth Air Force to serve as a Mandrel/Carpet jamming squadron alongside the two RAF squadrons, where it remained until November 1944) set up a flying Mandrel screen in a line from Littlehampton, in west Sussex, to Portland Bill, in Dorset. These aircraft duly gave electronic cover to the advancing (real) invasion fleet heading for the landing beaches, but with the jamming deliberately thin to the east to allow the German radar operators to observe the *Taxable* and *Glimmer* spoofs.

The ruse was a success because the Germans were unprepared for the amphibious and airborne landings in Normandy, and within days the Allied armies had broken out of the beachhead and were heading inland.

Less than a fortnight after D-Day, No 199 (BS) Sqn suffered its first casualty since joining No 100 (BS) Group. From March, Bomber Command's squadrons had been diverted from bombing area and industrial targets to concentrate instead on the communication targets of the Transportation Plan in the build up to Operation *Overlord*. Now, with the tactical bombing requirements of the invasion behind them, Bomber Command returned to striking at industrial targets.

On the night of 16/17 June it put up a mixed force of 321 aircraft to bomb the synthetic oil plant at Sterkrade/Holten, supported by 12 Stirlings flying No 100 (BS) Group's first Main Force Mandrel jamming screen following its introduction on D-Day. Unbeknown to the RAF's raid planners, the route of the bomber stream passed close to a Luftwaffe nightfighter beacon at Bocholt, near Sterkrade, which had been chosen by the German fighter controller as the holding point for his aircraft. The result was a bad night for Bomber Command. Frustratingly, the attack had little effect on oil production, but worst of all some 21 bombers were shot down by nightfighters, while flak accounted for ten more. The eight-man

crew of No 199 (BS) Sqn's Stirling III LJ531, flown by Plt Off Tom Dale RNZAF, failed to return and was lost without trace – the first casualties suffered by the squadron since it had joined No 100 (BS) Group. Tragedy struck the Dale family again two months later when Tom's older brother, James, a Lancaster navigator with No 75 (NZ) Sqn, was killed in action on 25 August raiding Rüsselsheim-am-Main.

Not long after D-Day No 199 (BS) Sqn also became involved in 'Windowing' operations with the creation of the Special Window Force (SWF). The rationale behind SWF was to combine it with the Mandrel screen to simulate the radar, radio and jamming transmissions from a bomber stream, and thereby dupe the German radar operators and fighter controllers. Enemy nightfighters would be drawn away from the real Main Force by a fake 'bomber stream' created using 'Window' dropped by No 100 (BS) Group's aircraft. The SWF flew its first operation on the night of 14/15 July 1944, with aircraft from No 100 (BS) Group's Nos 192, 199 and 214 Sqns all taking part. On that night a spoof bomber stream approached the Dutch coast and was intercepted by a large force of German nightfighters.

Shovelling packets of 'Window' (each weighing about 28 lbs) down the flare chute at altitude in the cold and dark while breathing oxygen through a mask was physically demanding work for whoever was doing it. It was only in the final months of the war that an automatic 'Window' dispenser was invented and fitted to some Stirling and Halifax aircraft.

No 199 (BS) Sqn's CO, Wg Cdr Norman Arthur Napier Bray, was a diminutive but hugely energetic character. Wg Cdr Michael Renaut, who was commanding No 171 Sqn when Bray had been promoted to group captain and made North Creake's station commander, wrote a vivid pen portrait of the man in his autobiography *Terror by Night*;

'Little "Nan" Bray, as we called him (his initials were N A N), was a ball of fire, not frightfully competent as a station commander, but he had *everyone* "organised". He couldn't have been more than 5 ft 4 in tall, but he was like a human dynamo and worked me to the bone. It was "Nan" who held the most lavish and riotous parties in the mess at North Creake and always invited the local VIPs.'

In August 'Nan' Bray handed command of No 199 (BS) Sqn over to Wg Cdr Percy Bevington. Bad weather conditions experienced during September resulted in the loss of an aircraft from the unit on the 25th. LJ518 had taken off from North Creake at 1902 hrs on a Mandrel screen sortie. Later, its mission completed, the captain, Plt Off Francis Chatwin, was descending through cloud to land when the Stirling struck tree tops. Chatwin attempted to climb away, but the bomber stalled and dived into the ground near Sculthorpe, in Norfolk, at 2145 hrs, killing the entire crew.

Later that year, in order to reinforce No 199 (BS) Sqn in its jamming duties, the squadron was reduced to two Flights, the third Flight being made available to form the nucleus of a new unit at North Creake, No 171 (BS) Sqn, on 7 September 1944. In due course the intention was to convert the squadron from Stirlings to Halifax IIIs, but delays in modifying the latter aircraft at St Athan to carry Mandrel equipment meant that the 'borrowed' Stirlings were used for longer than expected.

On 15/16 September two Stirlings flew No 171 (BS) Sqn's first bomber support operation with a 5 hr 16 min 'Windowing' mission to help create a

The diminutive Wg Cdr N A N Bray, known as 'Nan' to peers and subordinates alike (although he was not called this to his face), had been the officer commanding No 199 Sqn before promotion to group captain and his appointment to Station Commander at North Creake in August 1944

Wg Cdr Michael Renaut took command of No 171 Sqn at North Creake in September 1944. An experienced bomber pilot, he had flown the first Halifax to drop an 8000-lb High Capacity Blockbuster bomb operationally on 10/11 April 1942 while serving with No 76 Sqn. The pressure of wartime bomber operations came back to haunt Renaut after the war and contributed to his early death in 1964 at the age of just 43

No 199 Sqn's Stirling III LJ525/EX-R *JOLLY ROGER*, with Flt Sgt Allen Noble RAAF (fourth from left in the back row) and his crew and the aircraft's groundcrew (front row), during mid-1944. The aircraft arrived on the squadron after it had transferred from No 3 Group to No 100 (BS) Group at North Creake in May 1944. LJ525 went on to fly an estimated 60 operations from North Creake

spoof diversionary bomber force. These were LJ617 (flown by Flt Lt H L Coventry RAAF) and LJ562 (flown by WO V J Townshend). The first Halifax arrived on the 16th and seven more flew in to North Creake at the end of the month, when new ground staff also began to arrive. From 15 September to the end of the month the squadron's eight Stirlings flew 41 'Window' sorties without loss.

The CO of No 171 (BS) Sqn, Wg Cdr Michael Renaut, arrived at North Creake on 25 September. He had flown his first tour on Whitleys (No 78 Sqn), followed by Halifaxes (No 76 Sqn), and after a spell in the Middle East he had been appointed to command No 171 (BS) Sqn.

When briefed for operations, the two North Creake BS squadrons frequently operated together to create a spoof diversionary force, the Stirlings of No 199 (BS) Sqn providing a moving Mandrel screen while those of No 171 (BS) Sqn discharged 'Window'.

October was a busy month, with further new Halifax aircraft delivered to No 171 Sqn and, on the 2nd, 14 veteran crews arriving from No 4 Group. Wg Cdr Renaut was not happy with them, however, noting that 'with few exceptions I thought they were pretty awful. Evidently all squadrons in No 4 Group had been asked to allocate one crew to No 171 (BS) Sqn, and my guess was that this had enabled their squadron commanders to get rid of their unwanted garbage!' He appealed to the AOC, Air Vice-Marshal E B Addison, who reluctantly agreed to remove certain crews from the squadron and send him better replacements.

Bad weather prevented operational flying for much of October and November, which resulted in just 44 and 39 sorties being flown, respectively. Stirling operations continued until 21 October when the first three Halifax sorties were flown alongside three of the squadron's original mounts, although the 'Windowing' mission was later scrubbed. During October two Stirling crews every week were sent to No 1659 CU at Topcliffe, in Yorkshire, for converting onto the Halifax III. Finally, in late November, the last Stirlings finally bowed out of No 171 (BS) Sqn's battle order. On the night of the 20th two Stirlings – LJ567 and 'Z' (serial unknown) – and two Halifaxes were briefed for a Mandrel mission, but one Halifax failed to take off. On the 21st WO W J F Philipson and crew in 'L' (serial unknown) flew the unit's final Stirling sortie, a 'Window' mission, bringing to an end the aircraft's brief sojourn with No 171 (BS) Sqn, which then became an all-Halifax unit.

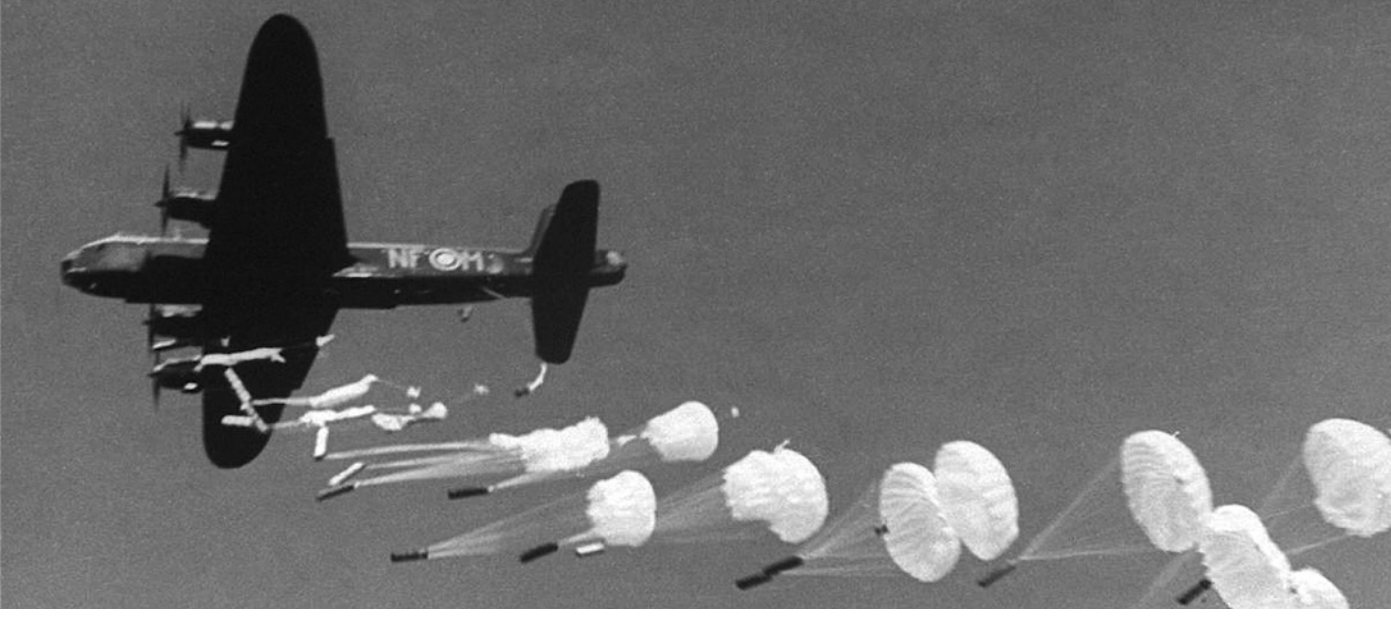
Returning to No 199 (BS) Sqn, on 9/10 September the unit lost an aircraft to the notorious Stirling swing when LJ578, flown by Flt Lt J Wood, swung out of control on take-off. It crashed through a hedge, whereupon a mainwheel tyre burst and the undercarriage collapsed, wrecking the aircraft. Another aircraft was lost upon its return from a Mandrel screen sortie on 5 December, LKJ567, flown by Flt Lt Bob Todd RCAF, striking a wall on the landing approach and badly damaging the undercarriage. The crew diverted to Woodbridge, in Suffolk, where a successful wheels-up landing was pulled off without injury to the crew.

The following night Flt Lt Jack Thurlow RCAF was returning to North Creake from a Mandrel screen sortie when the Stirling he was flying (LJ559) went out of control at 16,000 ft. Thurlow wrestled with the bomber as it dived towards the ground, reaching speeds of up to 450 mph – enough to rip part of the wings off. He finally recovered at 2000 ft and made a precautionary landing at Manston, in Kent.

In a cruel twist of fate the Thurlow crew later became No 199 (BS) Sqn's last Stirling loss of the war, and 'friendly fire' was responsible. On 5/6 March 1945, Flt Lt Jack Thurlow's LJ617 was hit by American anti-aircraft fire while circling at 18,000 ft over France on a Mandrel screen mission. Thurlow was an imposing and powerfully built man who was also an all-round athlete. When World War 1 ace Air Commodore Billy Bishop awarded him his wings on 5 June 1942, he asked for a box to stand on to reach the chest of the 6 ft 5 in, 17 stone airman. Seven members of Thurlow's crew managed to bail out of the stricken Stirling, but he stayed at the controls and was lost without trace when the aircraft disintegrated over the Moselle valley near Thionville, in northeastern France.

The Stirling made its last operational appearance of the war as a bomber with No 199 (BS) Sqn on 14/15 March when Sqn Ldr Jeff Button RAAF and a scratch crew that included Sqn Ldr Michael Docherty (navigator) and Wg Cdr Percy Bevington (air bomber and squadron CO) flew in LJ516 to provide a Mandrel screen. During their time as RCM aircraft with No 199 (BS) Sqn, Stirlings recorded 1378 sorties and only four were destroyed, representing a remarkably low loss rate of 0.3 per cent.

Sqn Ldr Jeff Button RAAF (seated in the centre of the front row) flew the last operational bomber sortie undertaken by a Stirling during World War 2 on 14/15 March 1945, the Australian being at the controls of LJ516/EX-P of No 199 Sqn. Wearing the distinctive dark blue battledress of the RAAF, he is seen here as a flight lieutenant with his crew shortly after joining No 199 Sqn (*Chris Seager/Mildred Webb*)



CHAPTER FOUR

CLOAK AND DAGGER

A Stirling of No 138 (SD) Sqn streams parachutes, beneath which are suspended metal supply cylinders packed with arms, ammunition and supplies, over a DZ. The C Type container, which opened up along its axis, could weigh up to 100 kg. The less sturdy H Type was made up of five metal drums placed end to end and secured together with steel rods

During the war years, if you were to descend the steep country lane from the Bedfordshire village of Everton and look ahead and to your right (roughly northwest), you would have noticed an airfield with runways and hangars stretching away towards the distant LNER railway line and the Great North Road. A few hundred yards from the road was an untidy collection of farm buildings – nothing out of the ordinary for a wartime airfield which, like hundreds of others, had sprung up in the middle of the British countryside. However, this airfield was different because its true purpose was a closely guarded secret. Its name was Tempsford, home to the RAF's two Special Duty (SD) units – Nos 138 and 161 Sqns – whose job it was to drop secret agents, weapons and equipment by parachute to resistance groups in enemy occupied Europe. For most of the war they were the RAF's only home-based, dedicated SD units.

For the first few years of the war the main focus of RAF SD operations from Britain was in creating and supplying (through Special Operations Executive – SOE) resistance 'circuits' in France, although hundreds of sorties were also flown to support the resistance movements in other occupied European and Scandinavian countries – Norway, Denmark, Belgium and Holland – and, to some extent, the anti-Nazi movements in Germany itself. Operations to succour resistance groups elsewhere in southern Europe, Poland and the Balkans were flown from North Africa and, from late 1943, Italy. Later in the war Tempsford's crews were joined in

their clandestine activities by Stirling squadrons from Bomber Command, as well as those from No 38 (Airborne Forces) Group. The USAAF joined in with squadrons operating from Harrington, in Northamptonshire, on behalf of the Office of Strategic Services (OSS), SOE's American equivalent.

'Tempsford was not much of a station', recalled Sqn Ldr Hugh Verity, who flew a tour of Westland Lysander operations with No 161 (SD) Sqn. 'It was a rush job, quickly built in wartime, like hundreds of others. Officers' mess, station headquarters, squadron offices and all the rest were temporary huts'. A farmhouse on the site, Gibraltar Farm, was used by the SOE to prepare agents for parachute drops and to store supply containers. Most of the crews who flew from Tempsford were experienced second or third tourists from Bomber Command, who recognised the need for absolute discretion both on and off duty.

From early in 1944 the Tempsford squadrons were assisted by several Stirling units from Bomber Command and later by those from No 38 (Airborne Forces) Group, whose Stirling crews also contributed in a significant way to the secret war until the end of hostilities.

SD operations were generally flown at night during the moon period (two weeks in every month), which aided crews in locating obscure drop zones (DZs) hidden away in remote forest clearings or in isolated fields 'somewhere in Europe'. Moonlight also helped to lessen the risk of low-flying at night, as well as enabling accurate navigation and map reading, both of which were crucial to successful drops. The rest of the month – the so-called 'dark period' – was when SD crews were usually stood down from operations. From the moment they took off, to their return hours later, SD aircraft flew their entire sorties at low level to avoid detection by German radar. The Stirling, when it finally became available for SD work in early 1944, was ideally suited to operations at low level because of its manoeuvrability, particularly with its fighter-like rate of roll, while its roomy fuselage meant it was able to carry passengers and supplies with ease.

Supplies were packed inside long cylindrical metal containers and carried in the aircraft's bomb-bay, to be released over the drop zone and carried to earth by parachute to the waiting reception committees. Agents and bulkier items would be dropped through the hatch – the 'Joe hole' – in the fuselage floor, and because they were being dropped at low level, their parachutes were opened by static cords as soon as they were clear of the aircraft.

TEMPSFORD'S SD SQUADRONS

No 138 (SD) Sqn was reformed at Newmarket on 25 August 1941 by re-numbering and expanding No 1419 (SD) Flight. It spent three months at Stradishall from December 1941 until March 1942, before moving to Tempsford, where it remained for the rest of the war. The squadron's purpose was to work with the SOE, acting as a 'taxi service' for agents to and from occupied countries, as well as supporting them with arms and equipment. The single-engined Lysander was used for actual landings in enemy territory to drop off and pick up agents, while the task of delivering heavier supplies and equipment by parachute was carried out initially

Gp Capt P C Pickard (centre), the CO of No 161 (SD) Sqn from October 1942 to May 1943, pictured with some of his 'pick-up' pilots at Tangmere, in Sussex, which was used as a forward operating base by the Tempsford SD units. They are, from left to right, Flg Off J A McCairns, Sqn Ldr Hugh Verity, Gp Capt Percy Charles 'Pick' Pickard (squadron commander), Flt Lt Peter Vaughan-Fowler and Flg Off Frank 'Bunny' Rymills. In front of Pickard sits his sheepdog 'Ming', and to the right is Rymill's spaniel 'Henry'

by twin-engined Armstrong Whitworth Whitleys, which were eventually replaced with Halifax IIs towards the end of 1942 and augmented by twin-engined Lockheed Hudsons from January 1943. It was not until April 1944 that the first Stirling IVs were received by the squadron to replace the ageing Halifaxes.

With the success of the Allied invasion of France on D-Day and the advance inland, the German occupation of northwestern Europe was progressively rolled back and, consequently, the need for supply drops to resistance groups in previously occupied territory tailed off. In March 1945 No 138 (SD) Sqn flew its final SD operations and was transferred to Bomber Command's No 3 Group, where it flew Lancasters as a Main Force bomber squadron.

The RAF's second home-based SD unit was No 161 (SD) Sqn, reformed at Newmarket on 14 February 1942 from a nucleus of the King's Flight under the command of Wg Cdr Edward 'Mouse' Fielden. The latter had been appointed Captain of the King's Flight in 1936 and personal pilot to the Prince of Wales (Edward VIII), and later to his brother George, who became King George VI on Edward's abdication. In October Fielden was promoted to group captain and made station commander at Tempsford, whereupon command of the squadron passed to Wg Cdr P C 'Pick' Pickard, an experienced bomber pilot who had recently found fame as the 'star' of the Ministry of Information and Warner Brothers film *Target for Tonight* in 1941. Fielden continued to lead from the front and flew operationally with various Tempsford crews, for which he received the Distinguished Flying Cross on 6 April 1943.

No 161 (SD) Sqn had a spell at Graveley, in Huntingdonshire, between March and August 1942 (Tempsford's satellite until August), after which the squadron moved 18 miles north to Tempsford, which became its base for the duration of the war. Like its sister SD unit, No 138, No 161 (SD) Sqn also operated Lysanders and Whitleys, with Halifaxes replacing the latter by the end of 1942. By the time that Stirlings had begun to replace the squadron's Halifaxes in September 1944, much of the supply-dropping activity had moved north to Denmark and Norway. Stirlings were flown by the squadron's 'B' Flight, which operated alongside the Hudsons in 'A' Flight until the unit was eventually disbanded in June 1945.

In spite of their vital role working with SOE to support Resistance networks operating in the occupied countries, ranging from Norway in

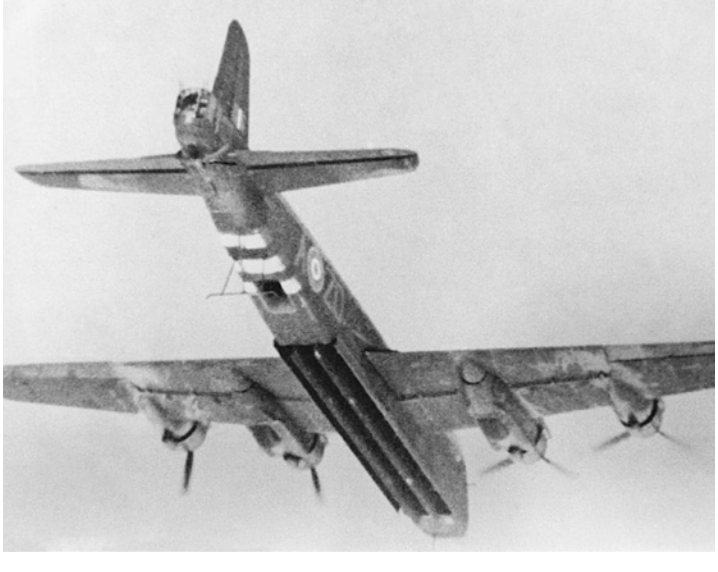
the north to the Balkans in the south, as well as into Eastern Europe, the two squadrons were denied the best aircraft available for the job, even though they were playing an increasingly important part in the 'cloak and dagger' war. For the most part, Nos 138 and 161 (SD) Sqns used a motley collection of types that included the Lysander (with which SD operations and agent dropping are most commonly associated), the Halifax II and V and the Hudson for their top secret sorties.

In October 1943 the decision had been taken by the Chiefs of Staff to retire the Merlin-engined Halifaxes from SD operations and replace them with Stirlings, which were being withdrawn from Bomber Command's Main Force squadrons owing to their poor performance and high losses. To this end, two prototype Stirling IVs (EF503 and EF506) were flown to Tempsford to assess their suitability, but on closer inspection they were found to be totally unsuited to SD work in their existing form. With certain modifications, however, it was agreed the Stirling could eventually be accepted for its new role.

The modifications included fitting a transparent Perspex nose fairing to allow for accurate map reading and to facilitate supply dropping, internal modifications to the rear fuselage to improve access to the 6 ft x 4 ft 'Joe hole' in the floor and, importantly, an increase in fuel capacity to give greater range and endurance to the aircraft as they sortied far and wide across Europe. However, disputes about the level of modification required and how the aircraft were to be introduced onto the squadrons meant the arrival of the first dedicated SOE Stirling IVs at Tempsford did not materialise until mid-1944.

In the meantime, during the first few months of 1944, Tempsford's two SD squadrons were suffering from a serious shortage of aircraft, which meant their supply-dropping capability fell far short of what was needed. As a stop-gap, five of Bomber Command's Stirling III squadrons (Nos 75, 90, 149, 199 and 214, which had recently been relegated from the frontline battle order) were temporarily diverted to support them. In fact, a flight of Stirlings from No 214 Sqn had already been seconded to Tempsford on 15 September 1943, flying its first SD sorties four days later.

In January, nine Stirlings and their crews from Nos 149 and 199 Sqns, under the command of Sqn Ldr W Jeffries, were loaned to Tempsford, from where they flew 20 sorties with limited success. Some 120 ground staff were also seconded to assist with aircraft maintenance. They were soon joined by ten airborne forces squadrons from No 38 Group, which included Nos 190, 196, 299 and 620 Sqns with their newly acquired Stirling IVs. Their supply-dropping operations were coordinated with those of the Tempsford squadrons,



This unique underside view of a Stirling IV (No 196 Sqn's ZO-A) in flight shows the workings of a No 38 Group transport aircraft to good advantage. The fuselage bomb-bay is open, revealing the three longitudinal bomb cells. The 'Joe hole' is also open, and the strop guard fully deployed behind it to prevent parachute static lines from damaging the tailplane. Beneath the rear turret can be seen the glider towing bridle. Note the remnants of invasion stripes beneath the rear fuselage

During the moon period in February 1944, six Stirlings under the command of Sqn Ldr Arthur Reece (seated in the centre of the front row) on attachment to Tempsford from No 149 Sqn at Lakenheath flew 26 SD sorties. Sqn Ldr Reece and his No 149 Sqn crew are seen here (*Chris Seager/Mildred Webb*)

but they flew from their own bases. No 214 Sqn undertook no further SD operations after its Stirlings were re-assigned to bomber support duties in January 1944 with the newly formed No 100 (BS) Group, although some of its crews were transferred to No 149 Sqn.

Poor weather hampered operations in early February 1944, but it marked the beginning of combined Tempsford and No 38 Group SD activity over northern Europe. During the moon period six Stirlings on attachment to Tempsford from No 149 Sqn at Lakenheath, under the command of Sqn Ldr Arthur Reece, flew 26 sorties. Bomber Command's Stirling squadrons were rotated through SD ops, with No 149 Sqn being replaced in March by Nos 75 (NZ) and 90 Sqns. Further bad weather during the month caused more difficulties for the SD crews, who flew most of their sorties at low level, where airframe and engine icing became a particular problem.

On 3/4 February No 196 Sqn flew its first SD operation to France, with EJ110, flown by Plt Off Pryke, failing to return on the 4th and a second unidentified Stirling flown by Flg Off Moore going missing the following night. No 149 Sqn lost EF187 (flown by Flt Lt Hubert Colenutt) to a nightfighter on 6 February while dropping supplies to the Maquis west of Dijon, the Stirling crashing at Cussy-les-Forges (Yonne). On 16 February No 199 Sqn's EF271 (flown by Plt Off Kevin Robinson RAAF) crashed at Vergt, in the Dordogne, after a drop to the resistance, killing its crew of seven. Enemy action was suspected as being the cause of the crash.

No 75 (NZ) Sqn carried out its first SD operations on 2/3 March when ten aircraft visited DZs in France. The following night it put up 15 Stirlings, but lost one (EE215, flown by Sqn Ldr Raymond Watson RNZAF) on Mission Trainer 24 to drop supplies in the rugged Puy-de-Dôme area of the Auvergne, where it crashed into the mountainside at Puy Mandon, southwest of Clermont-Ferrand. Only the mid-upper gunner survived. Hazardous flying conditions of dense low cloud and ground haze had prevented all but four crews from making their drops over what was already a challenging terrain.

On 4/5 March No 90 Sqn fielded nine aircraft, but lost EH906 to flak over the Loire valley en route to its DZ in the Haute-Savoie (its pilot, Flt Lt Cyril French RAFVR, was killed). The following night Stirlings from Nos 75 (NZ) and 90 Sqns were out again over French DZs, releasing their cargoes from as low as 400 ft, but in the process they lost one aircraft to light flak near Abbeville (No 90 Sqn's EF147), although its pilot, WO Bernard Edinborough, and his crew managed to evade capture. On 10/11 March, squadrons from No 38 Group and Bomber Command were out in force

over France, with one Stirling (No 90 Sqn's LJ509, flown by Sqn Ldr Terence King) crashing at Brazey-en-Plaine, southeast of Dijon in eastern France. On 15/16 March 15 Stirlings of No 75 (NZ) Sqn flew the unit's last SD sorties before returning to bombing French targets and mine-laying.

On the blackboard in flying control at Tempsford, a WAAF chalks up the station's latest arrival home following the night's SD operations on 11 April 1944. No 138 Sqn had begun to receive its first Stirlings that same month (*Author's Collection/C Annis via Ken Merrick*)

PRELUDE TO *OVERLORD*

The build-up to the invasion of northwest Europe was gathering momentum, and the month of April saw a marked increase in SD operations, with No 38 Group's squadrons (including Stirlings among the Armstrong Whitworth Albemarles and Halifaxes) playing a significant part together with Bomber Command's No 90 Sqn and its Stirlings. The planned re-equipment of the Tempsford squadrons with Stirling IVs, first mooted the previous autumn, had still not occurred.

On 9/10 April No 90 Sqn despatched 17 Stirlings, and one aircraft failed to return. This was Flt Lt C S Gay RNZAF and crew in LJ460, flying SOE mission Dick 35 to a DZ south of Paris. The aircraft was hit by light flak at 500 ft and crash-landed in wooded countryside near Sully-sur-Loire. Amazingly, all the crew survived to become PoWs. Operating at such low level left SD aircraft vulnerable to damage by light flak. Also lost that night was No 149 Sqn's LK382 (flown by Flt Lt Richard Sanders), which fell victim to a nightfighter near Esmery-Hallon on the Somme. The following night No 149 Sqn lost Stirling EF502, flown by Plt Off Douglas Bray, on SOE mission Pimento 68 in southern France, the aeroplane being hit by gunfire from a flak train at Saint-Rambert. The aircraft duly crashed onto the roof of a farmhouse at Saint-Jean-le-Vieux on the edge of the Pyrenees. Only the two gunners survived, and they evaded.

On 11/12 April 15 Stirlings were among No 38 Group's contribution to supply drops in France, and two aircraft and their crews were lost. No 190 Sqn's LJ882 (flown by Flt Sgt Peter Crowdis RNZAF) crashed after take-off near Wimborne, in Dorset, killing its crew, and No 620 Sqn's LJ867 (flown by Flt Sgt L J Brown) was hit by flak on its way to the DZ and crashed in southwest France near Bordeaux, claiming the life of the navigator.

Returning in the early hours of the 12th, No 90 Sqn Stirlings suffered two crash-landings in England. Flt Sgt Jack Towers' aircraft (EH947) was hit by flak near a DZ in southwest France, and by the time they reached the English coast the whole starboard wing was ablaze. Towers managed to pull off a crash-landing at Hicklingham, in Suffolk, but rear gunner Jimmy Powell died when he was thrown from the aircraft. WO Dennis Field and his crew suffered a similar fate after making a successful supply drop in France, their Stirling (EF182) being badly hit by gunfire from a flak train in the Loire valley that seriously wounded the flight engineer and wireless operator. Aided by the injured wireless operator, Field nursed the crippled Stirling across the Channel to make an emergency landing at Friston, a fighter airfield near Beachy Head. The flight engineer subsequently succumbed

No 90 Sqn's Flt Lt Jack Towers and his all-NCO crew at Tuddenham in March 1944. These men are, from left to right, Bill Burns (flight engineer), Andy Milligan (mid-upper gunner), Jack Towers (pilot), Jimmy Powell (rear gunner), Eric Webster (bomb aimer) and (kneeling) Jack Stimson RAAF (navigator). Jimmy Powell died in the crash-landing of EH947 at Hicklingham, in Suffolk, upon returning from an SD operation on 12 April 1944

to his wounds, but the wireless op, Eddie Durrans, survived his ordeal to be awarded the Conspicuous Gallantry Medal for his fortitude in assisting Field to fly the damaged bomber home.

On 12/13 April No 90 Sqn's crews were on the SD battle order again when they despatched 11 Stirlings to DZs in Europe, nine aircraft reporting successful drops, but two failing to return from SOE missions in France – EF162, flown by Flt Lt Colin Bowling RNZAF, and LJ483, flown by WO Frederick Gardiner. Towards the end of the month 13 Stirlings were among No 38 Group's operations to French DZs on 28/29 April, with No 90 Sqn contributing 13 more. Flt Lt Jack Towers, who had survived a crash-landing only a few weeks before, was killed along with his rear gunner when their Stirling (EE974) crashed near Stradishall, although five of the crew managed to bail out. No 149 Sqn's Plt Off I C McArthur successfully crash-landed his Stirling (EF238) at Methwold after it was hit by flak, having nursed his aircraft home. Stirling contributions to April's SD ops were rounded off with No 90 Sqn despatching 13 aircraft on the 30th to undisclosed DZs.

Flg Off Dave Chapple RAAF and his No 90 Sqn crew had flown their first SD mission from Tempsford in February. Sgt Ken Gandy was the crew's rear gunner and he recalled their experience of SD missions to France;

'Special missions were only carried out during the moon periods. We would go out low over the sea to avoid enemy radar, climb over the enemy coast to get above light ack-ack and then drop down to low level again. I never liked flying, but I came very close to liking it on these trips. To fly over the sea and across Europe on bright moonlit nights at ground level was a truly marvellous experience. The sheer beauty of it took my breath away. At this time I used to study maps of France, and I memorised details of the Loire river, as it was here that Gee, our electronic navigational aid, ran out, and we had to find our "reception" by map reading and dead reckoning. Occasionally I would get a drift reading for Phil Green, our navigator.

'The reception committee would have three red lights in a row and at one end a white light – usually ordinary hand torches. The white light flashed a code, a letter in Morse, so that we knew it was the right drop and not the Germans cashing in. It also indicated wind direction. We would come in at 600 ft, throttle back, flaps down, to drop the load by parachute. Hell, I used to feel vulnerable until the engines opened up again. One light ack-ack gun would have shot us to pieces.'

With D-Day fast approaching, the month of May saw unrelenting pressure on the SD squadrons at Tempsford and on No 38 Group to supply resistance groups in France, Belgium, Denmark and Germany. On 7/8 May, Stirlings from No 38 Group and No 90 Sqn visited DZs in France, losing No 620 Sqn's Flg Off Archie Swann RAAF and crew (in LJ886) on Mission Messenger 2 to the guns of a Do 217 nightfighter, the Stirling crashing at Poisson, in eastern France.

In the next few days No 90 Sqn suffered a further run of bad luck when Stirling BF524 (flown by Flt Sgt H S Rawlins) on Mission Bob 183 was shot down by a nightfighter on 8/9 May, crashing at Saint-Aignan-le-Jaillard, in north-central France. Rawlins and two others survived to become PoWs. The following night the squadron lost two more aircraft and crews. Flg Off Lawrence Joseph and crew (in EF254), on an SOE operation, crashed at Villabon, in central France. Although Joseph and four other crewmen were killed, the bomb aimer and a gunner survived to be captured. Flg Off Dave Chapple RAAF and crew (in EF509) on Mission Pimento 101 to a DZ in southern France were hit by light flak whilst returning home across Normandy, the Stirling being crash-landed at Saint-Jean-de-Bois, in northwestern France. Flt Sgt Wilf Hodgson RAAF, the bomb aimer, remembers the final moments of EF509/X-X-ray on what became the aircraft's 41st and the crew's 29th, and final, operational sorties;

'We crossed the coastline at 8000 ft, everything was very quiet and Dave pushed the nose down and we came down at 250 mph. The fields and villages became plainer and plainer as we descended until we got down to 1000 ft, and that was when it happened. Suddenly, tracer leapt at us from the starboard bow. Dave did a steep climbing turn to port to miss the stream of shells. Just as we did this another gun opened up on the port bow and we ran right into it. The cannon shells ripped through the fuselage, shooting away the hydraulic lines, which sprayed oil everywhere. The starboard outer belched sparks and smoke and one motor must have been hit because it made an unholy din as it moved up.

'Dave gave the order to fix parachutes and stand by to abandon the aircraft. I clipped my 'chute on and went down to the bomb-bays to unfasten the emergency exit door. Through the Perspex of the bombing panel I saw the trees rushing past as we were only at a couple of hundred feet. Just then Dave said, "Get into crash positions". I took off my 'chute pack and braced myself on the navigator's table with my feet against the armour plate of the pilot's seat.

'I plugged in the intercom and heard Dave saying "Holding off! Holding off!" Those were the last words I heard him say because just then came a sickening crash, and I had an amazingly contented feeling of spiralling slowly through black space and watching stars shooting past. When I recovered my senses I was surrounded by wreckage and have a recollection of crawling on my hands and knees from beneath a fire blazing in one of the motors. I expected the petrol tanks to blow up at any moment, so I started to run from the aircraft. We had crashed on the side of a steep hill, and as I ran down the side of the hill I saw several others standing in a group, and was relieved to see it was Phil, Charlie, Roy and Ken. Later, Dave and Jock came down the hill from the direction of the kite. Fortunately, none of us suffered any injuries apart from bruises and cuts.'

Chapple and four other crew members evaded with the help of the Resistance, but Wilf Hodgson and mid-upper gunner Sgt Sandy Cochrane were captured by the Germans and became PoWs.

Flak and fighters were becoming a growing danger to SD crews, and they were the primary reasons behind an increase in their losses. With more aircraft now flying sorties to deliver equipment and supplies to resistance groups, the advantages of the early days when lone aircraft flew low and undetected were no longer possible now that as many as ten aircraft were converging on the same DZ in one night.

With the dark period in May beginning on the 18th, No 90 Sqn and No 38 Group were stood down from SD operations until the new moon period in the last week of the month, yet some supply operations continued despite this. On 2 June at 2239 hrs Flt Lt K MacDonald and his No 90 Sqn crew (in EF294) took off from Tuddenham on an SOE mission to France. They crashed three hours later at Bayonvillers, a tiny village on the Somme. MacDonald and his bomb aimer evaded, but the rest of the crew went into the 'bag' as PoWs.

D-DAY AND AFTERWARDS

On the eve of the invasion, the Tempsford units and Stirlings from Bomber Command's No 149 Sqn were out in force. In Operation *Titanic*, Stirlings from Nos 90 and 149 Sqns flew alongside Hudsons and Halifaxes from Tempsford to mount a fake airborne assault on Normandy to distract the German defenders. The operation consisted of four phases and called for the dropping of 500 dummy parachutists, rifle fire simulators, 'Window' and two SAS teams to simulate airborne landings away from the actual invasion area. In the third wave, *Titanic III*, No 149 Sqn lost two Stirlings and their eight-man crews to unknown causes (LK385, flown by Sqn Ldr Charles Hutchins, and LJ621, flown by Plt Off Wilfred Mayo) while dropping 50 dummy parachutists in the Calvados department of Lower Normandy.

No 38 Group, with its heavy commitment to the delivery of airborne forces to the Orne bridgehead on D-Day, was temporarily absent from SD operations at this time, and Bomber Command's No 90 Sqn flew its final SD sorties on 7/8 June. Over a period of about eight weeks following the invasion, Tempsford and No 38 Group were active in delivering three-man 'Jedburgh' teams to assist resistance forces in coordinating their activities with Allied invasion plans, and 'Dingson', 'Bulbasket', 'Cooney' and 'Houndsworth' SAS teams to cause maximum disruption behind enemy lines, targeting rail traffic heading from the south of France to the Normandy battle area. However, poor weather at various times during the month caused missions to be cancelled at short notice or aborted en route. When aircraft managed to take off, the inclement weather added to the crews' difficulties in locating the DZs.

In mid-June No 38 Group squadrons flew several large re-supply missions in daylight to Allied ground forces in France during Operation *Townhall*. A shuttle service was also established that month where selected crews were instructed to fly on from their French DZs to Blida, in Algeria, with further drops scheduled for the return journey.

On the night of 17/18 June, No 620 Sqn's LJ850, skippered by Plt Off Robert Crane RAAF, was one of three Stirlings that took off from Fairford, in Gloucestershire, carrying between them 45 SAS troops and 42 supply containers to be dropped on the DZ (Houndsworth 5) in densely wooded countryside at Mazignien, in central France. Two aircraft reached the DZ, but owing to bad weather they aborted the drop. However, LJ850 never made it that far, the Stirling, its crew of six and 15 troops from 1 SAS being lost without trace whilst crossing the English Channel on the outward flight, the cause unknown. In 2016 wreckage was located a few miles inland from Omaha Beach which could prove to be that of LJ850.

In July No 161 (SD) Sqn's 'B' Flight began conversion to Stirlings, but Bomber Command HQ decided to hold fire on re-equipping the unit until enough aircraft were available for a complete changeover. In the meantime, those Stirlings that had become available were passed to No 138 (SD) Sqn, which had priority (it had received 11 aircraft by mid-July).

July proved to be a busy month operationally for both the Tempsford squadrons and those of No 38 Group, with most of their supply sorties being for the benefit of SAS groups dropped behind enemy lines. During the early morning hours of 6 July Plt Off C W Holmes and his crew had a relatively lucky escape when their No 149 Sqn Stirling III (LJ477) crashed while attempting to land at Thorney Island after returning from an aborted sortie (Gondolier 16) in the Lyons area, although the navigator was killed. On 23 July, No 90 Sqn's Flt Lt Leonard Kilgour RNZAF and crew (in LJ882), carrying a nine-man SAS team (Rupert 3) charged with cutting railway lines between Châlons-sur-Marne and Nancy, flew into high ground in poor visibility near Graffigny-Chemin in the Haute Marne. Only two of the crew and one SAS soldier survived the impact. Also lost that same night was No 620 Sqn's Flg Off Ernest Oke RCAF and crew (in LJ864) on SOE mission Stationer 117, their Stirling being hit by flak over Le Havre on the way to the DZ and crashing at Brillac, northwest of Limoges. Plt Off Douglas Robson and crew of No 570 Sqn's LK133 failed to return from SOE mission Hermit 15 in the Dijon area of France on 29 July, crashing near Orleans.

The month of August continued the gruelling pace of SOE and SAS drops over France in the wake of the successes in Normandy and then the American-led invasion of the south of France on 15 August, codenamed Operation *Dragoon*. With the rapidly changing situation on the ground the German forces were being pushed back on several fronts, which meant that operational requirements for SD crews could change at short notice. Briefed operations might be scrubbed and then back on again – an experience Stirling crews shared with their Lancaster and Halifax compatriots in Bomber Command who were involved in tactical bombing operations in Normandy.

On 4 August No 620 Sqn's Plt Off Edward Robinson RNZAF and crew were in the process of re-supplying SAS forces in operation Houndsworth 44 when their Stirling (LJ920) was hit by flak and crashed at Notre-Dame-de-Livaye, near Lisieux in the Calvados department. The crew was killed along with their two Royal Army Service Corps (RASC) despatchers. On 6 August No 299 Sqn Stirling LK645, flying from Keevil, in Wiltshire,

was shot down in flames near Plougoumelen, in Morbihan, claiming the lives of all the crew. Its captain, Plt Off Henare Whakatau Uru RNZAF, was a Maori, and his mixed crew of Kiwis, Australians, Canadians and one Briton exemplified the international make-up of many No 38 Group squadrons at this time.

Coastal flak was to blame for the loss on 10 August of No 620 Sqn's EF256 on operation Ditcher. Skippered by Flg Off Bell, the Stirling was carrying French paratroops of 3 SAS to the Saône-et-Loire area of France when it was hit by flak and forced to ditch in the Channel between Jersey and the Cotentin peninsula. The crew survived but two troopers from 3 SAS were drowned. On 14/15 August No 299 Sqn's LK124 (flown by Plt Off William Hough RAAF) failed to return from operation Dick 108, the aircraft crashing near Bourges in the Loire valley. One week later, on 21 August, No 299 Sqn lost another Stirling when Flt Lt Ernest Taylor and crew (in LJ813) were killed on mission Paul 118 when they crashed at Saint-Germain-des-Prés in the Dordogne.

As the Allied armies advanced further into mainland Europe the German defences were not always to blame for aircraft losses. In a friendly fire incident, No 570 Sqn's LJ631, flying operation Bob 209, was hit by Allied anti-aircraft fire near Bellême, in Normandy. The pilot, Flt Lt Stanley Maunder, stayed at the controls to allow his crew to bail out, but perished when the Stirling crashed.

On 26 August, *Daily Sketch* war correspondent W J Makin – a widely known traveller, lecturer and writer – accompanied a No 190 Sqn crew to experience an SD supply drop at first hand. The aircraft in which he was flying (LJ827, flown by Flg Off Norman Port RAAF) never made it home for him to file his story, as it crashed at Villebougis, southeast of Paris. The bomb aimer was the only survivor, although Makin survived the crash but died of his injuries. The final Stirling loss of the month was on the 28th when Flg Off D R Campbell from No 196 Sqn successfully ditched Mk III EF311 in the Channel off Selsey Bill after the aircraft suffered engine failure and airframe damage from a break-away propeller.

No 138 (SD) Sqn made its final Halifax sorties in September, after which it switched exclusively to the Stirling – the first of these had reached the unit on 14 August. It undertook 20 sorties in September, although nine of these were supply drops to support British airborne troops at Arnhem. The month got off to a poor start for No 138 (SD) Sqn when it lost two Stirlings on the 1st in very different circumstances. LK131 (flown by Flt Lt Alfred Wallace RCAF) was on SOE operation Gerrit 1 when it was shot down by flak and crashed close to the former German nightfighter airfield at Gilze-Rijen, in Holland. Flg Off Robert Hardie RAAF and his crew (in LJ503) perished while flying at low level in a violent storm on operation Bob 325, the Stirling crashing near Arc-et-Senens, southeast of Dijon in eastern France, after it clipped some trees.

Sqn Ldr Geoff Rothwell escaped with minor injuries when his No 138 (SD) Sqn Stirling (LK200) collided with a barrage balloon cable over Holland in the early hours of 9 September during operation Draughts and Backgammon. The aircraft ploughed into sand dunes at De Cocksdorp on the island of Texel, claiming the lives of the bomb aimer, wireless operator and gunner.

No 161 (SD) Sqn lost its first Stirling on 21 September when Flg Off A J Spencer was taking off from Tempsford in LK208 for operation Osric 900 in Belgium. The aircraft swung on take-off and crashed. The crew was reported to have been uninjured. Three days later No 196 Sqn's LK142, captained by Flt Sgt D Draper and carrying 24 containers and four panniers, crashed into high ground close to the DZ in the Haute Savoie near Annecy. Draper, the navigator and rear gunner survived to return to England, but three others died. The fuselage of LK142 is now on display at the *Musée du Terrain d'Aviation* in Vraux, France.

Flt Lt Geoff Rothwell with his crew – 'Rothwell's Ruffians' – seen here on completion of their tour with No 218 Sqn on 26 July 1943. Promoted to squadron leader, Geoff (third from right) was posted to No 138 (SD) Sqn at Tempsford in May 1944 after a spell instructing at an OTU. He flew 16 SD operations before crash-landing on the Dutch island of Texel on 9 September 1944 in Stirling IV LK200 after it collided with a barrage balloon cable over Holland (*Author's Collection/Geoff Rothwell*)

On 26/27 September No 138 (SD) Sqn mounted an unusual mass supply drop when it despatched ten aircraft (including one Halifax) to a single French DZ. The operation was a success, but lone Stirling LJ932, flown by Flt Lt Ralph Read and detailed to supply a DZ in Denmark (Tablejam 14/26), was attacked by a Ju 88 nightfighter on the return journey and its two port engines knocked out. Read diverted to RAF Ludford Magna, in Lincolnshire, where a successful crash-landing was made on farmland at the edge of the village.

Bad weather hampered operations during October, although Stirlings managed to fly eight sorties. No 161 (SD) Sqn lost LK238 (flown by Sqn Ldr George Abecassis) on 7 October on mission Tablejam 104/26 – a weapons drop to the Danish Resistance. The aircraft was attacked by a Ju 88 from 6./NJG 3 and crash-landed near Gørding in Jutland, with all but one of the crew surviving. November's weather proved to be no better.

A rare photograph of a Belgian White Army soldier watching as a No 138 (SD) Sqn Stirling prepares to drop supplies on 10 September 1944. Nos 138 and 161 (SD) Sqns took part in this mission, which was the first of several mass daylight drops of supplies and weapons to Belgian Osric DZs manned by the Belgian White Army

LEFT
Returning from an SOE drop over Denmark on 26/27 September 1944, No 138 (SD) Sqn's Stirling IV LJ932/NF-N was attacked by a Ju 88 nightfighter and badly damaged. Pilot Flt Lt Ralph Read coaxed the aircraft home across the North Sea with both port engines dead. Flight engineer Plt Off Sam Curtis had been seriously wounded in the attack, but he still managed to assist Read and the wireless operator to make a successful crash-landing at Ludford Magna, in Lincolnshire. For their bravery each man was awarded an immediate DFC

On the 7th, No 190 Sqn's LK195 (Flg Off Edwin Hodgson RCAF) was one of four squadron aircraft on an SOE mission to Holland (Dudley 3) when it crashed near Enkhuizen, on the Ijsselmeer. Tempsford lost two Stirlings on sorties to Norway on the 8th/9th. Plt Off Louis Ouelette RCAF and his No 138 (SD) Sqn crew in LK198 crashed in bad weather over the North Sea en route to Norway on operation Puffin 2, and Flt Lt Frederick Ford and crew in LJ993, carrying two Norwegian agents, disappeared without trace on operation Crupper 11. However, poor weather conditions failed to stop 16 Stirlings from No 620 Sqn flying supply sorties on the 15th.

Trouble could also happen closer to home, as was the case on 21 November for No 190 Sqn's Flg Off James Kidgell RAAF and crew. They were practising night circuits and landings at their home base of Great Dunmow, in Essex, in Stirling IV LK276 with a Horsa glider in tow when a German intruder crept into the circuit and shot them down.

Stirlings were busy during the latter part of the month. On 26/27 November they flew 20 sorties to Scandinavia, with No 620 being part of the effort that night when it put up six Stirlings for SOE drops in southern Norway. Sgt John Bower, flight engineer in 'A' Flight commander Flt Lt W A Jack's crew (in LJ983), recorded a 9.5-hour trip in his log book. The long-distance operations to Norway were well beyond the effective range of Gee, so they were usually planned for moonlit nights to help the crews to navigate by dead reckoning and map reading. However, clear nights with good visibility also aided the German nightfighters based in Norway, which found the slow Stirlings easy prey.

Nightfighters were also out hunting over Denmark that night. After they had dropped their load of 18 containers at the DZ on the Danish island of Fyn (Tablejam 69), No 138 (SD) Sqn's LK151 and its crew (led by Flt Lt Reginald Witham RAAF) were caught by a Ju 88 of 1./NJG 3, which shot them down into the sea. The next night No 38 Group flew 22 sorties to Norway, but only ten were successful and one Stirling was lost (No 299 Sqn's LK241, flown by WO John Dickie RAAF). On 29/30 November appalling weather conditions prevented 20 of Tempsford's Stirlings and 16 Stirlings and Halifaxes from No 38 Group from making successful drops in Norway.

The bad weather had clearly set in because it continued throughout much of December, hampering flying. On the 3rd, No 138 (SD) Sqn lost Stirling LK143 and its crew (led by Flg Off George Nichols) in the North Sea on an operation to Denmark (Tablejam 169/177). Stirlings from both SD squadrons were involved in supporting the Allied counter-attack in the Ardennes after the Americans had been caught napping by the massive German ground offensive – dubbed the Battle of the Bulge – that had commenced on 16 December.

All means possible were tried to stem the German advance, including spoof paratroop drops behind enemy lines by Tempsford's Stirlings. On the night of 23 December seven crews took part, but were hampered by thick fog and compelled to land away at Tangmere, in Sussex. On 24/25 December eight crews repeated the previous night's operation, which involved very low flying. Despite German nightfighters being much in evidence, the drop was successful – light flak and machine gun fire were also encountered over the DZ. Heavy snow followed by thick fog caused the aircraft to be diverted to Lyneham, in Wiltshire, upon returning home.

The last few days of 1944 saw a flurry of activity over Norway, Denmark and Holland by both Tempsford's and No 38 Group's Stirling squadrons in an attempt to make up for the delays caused by the inclement weather. Flg Off John McNamara RAAF and his No 620 Sqn crew were flying SOE mission Tail 2 to Norway when they were attacked near Oslo by a nightfighter from *Nachtjägerstaffel Norwegen*. Their Stirling (LJ970) crashed at Sande, in Vestfold. No 138 Sqn Stirling LK283 (flown by Flt Lt Raymond McGregor RNZAF) was shot down over the North Sea by flak fired from German ships sailing off Norway on 30/31 December during operation Crupper 10. The following night No 620 Sqn's LJ914, flown by Flg Off Frederick Waring, disappeared without trace on Crupper 30 near the mouth of the Skagerrak strait, off southeast Norway, having become yet another victim of the German defences.

Weather conditions remained bad in January and February 1945, severely curtailing most flying operations from Tempsford. However, one aircraft that braved the elements on 9/10 February (but paid the ultimate price) was No 138 (SD) Sqn's LK279 (flown by Flt Sgt Stanley Tucker), which failed to return from a sortie to Denmark. The Stirling plunged into Little Belt over Gamborg Fjord in blizzard conditions on operation

On 10 March 1945, two Stirlings of No 196 Sqn took part in a daylight drop to a Maquis ski-school in the French Alps north of Grenoble. Members of the Glider Pilot Regiment were parachuted in to undergo ski instruction, with a possible future operation in Norway in mind

Tablejam 190, the wreck of the aircraft finally being recovered in 1951. This was the first Stirling loss of 1945.

On St Valentine's Day an exuberant gesture by a USAAF 383rd FS P-51B Mustang pilot ended in disaster. Flt Off Thomas Kiley launched a dummy attack on No 161 (SD) Sqn Stirling LK236 (flown by Flg Off Eric Timperley) in Tempsford's circuit while it was attempting to land. Kiley misjudged the manoeuvre and his fighter collided with the bomber, which lost its tailplane, causing both aircraft to crash with fatal results.

Now that liberation was in sight for the Low Countries, SOE increased its help to the Norwegian resistance to fight back against the German occupation of their country. On the night of 20/21 February, 103 SOE sorties were flown by aircraft from No 38 Group, most of them to Norway. No 620 Sqn's Flt Lt Jack and his crew (in LJ983) recorded a 9 hr 45 min sortie. Jack's crew were on the battle order again for Norway on the 23rd, which was another long trip of 8 hrs 35 mins. The two Great Dunmow units (Nos 190 and 620 Sqns) were instructed to divert to Kinloss, in Scotland, on their return, owing to poor weather in the south of England. They flew back to their base the following afternoon.

However, two aircraft were lost on operations that night – Flt Sgt Eric Sinkinson's No 138 (SD) Sqn Stirling LK149 crashed into the sea off Denmark on operation Tablejam 181, claiming the lives of its seven-man crew. Over Norway, WO Stanley Currie's No 190 Sqn Stirling LK566 was spotted by a German nightfighter in bright moonlight over the snowy landscape. In the running battle that ensued the Stirling's gunners gave a good account of themselves before their aircraft caught fire and plunged into a rocky crag near Lilleholt, exploding on impact and claiming the lives of the crew.

The Ju 88s, Bf 110s and Me 410s of *Nachtjägerstaffel Norwegen* continued to exact a toll on the RAF's SD operations over Norway. In the early hours of 26 February, by the light of the moon, a determined attack by three nightfighters on Stirling LJ925 (flown by Flg Off Russell Tickner RAAF) of No 196 Sqn on SOE mission Stirrup 2 to a DZ at Hamrefjell set the aircraft on fire. It ended when Tickner attempted an emergency landing on Lake Holen, near Arendal, the bomber hitting the frozen surface and crashing through ice more than one foot thick to sink in 40 ft of water. Miraculously, three of the crew managed to bail out before the Stirling hit the lake, but Tickner is believed to have been trapped inside the sunken aircraft and his body was deemed unrecoverable. Less than 24 hours later Norwegian coastal flak batteries claimed No 138 (SD) Sqn's LK272 (flown by Flt Lt Peter Cornwallis) on SOE operation Crupper 37, with four agents on board, the Stirling crashing into the North Sea.

Weather conditions improved enough during March to enable 65 sorties to be flown by No 161 (SD) Sqn's Stirlings, and it also marked the end of SD operations for No 138 (SD) Sqn. On 5 March the latter unit's Flg Off L G Sleven and his crew had a lucky escape after an onboard explosion within their Stirling (LJ999) sent the aircraft tumbling out of control to crash in shallow water in Ringkobing Fjord. They had been homeward-bound at low level from operation Tablejam 241 to Denmark at the time, and they all survived to become PoWs.

However, the month of March also witnessed No 161 Sqn's single heaviest losses on one night with three Stirlings and three Hudsons failing

While flying SOE mission Bit 14 over southern Norway on 30/31 March 1945, No 161 (SD) Sqn's Stirling IV LK119/MA-Y was attacked by nightfighters from *Nachtjägerstaffel Norwegen* causing it to explode in mid-air, killing Flt Lt Edward Kidd and his crew. LK119 had served previously with No 138 (SD) Sqn as NF-R, in whose markings it is seen here (*Author's Collection/J Breeze*)

to return from operations on the 4th/5th. Amongst the Stirling personnel lost was the squadron's new CO of one month, Wg Cdr Michael 'Mickey' Brogan, and his crew (in LK312) on Tablejam 209, the aircraft crashing into the sea off the north Danish coast. On the 22nd/23rd LK209 (flown by Flt Lt Alan Aitken) on Rowing 3 was en route to the DZ in the Utrecht area of Holland with weapons and supplies when it was fatally damaged by a coastal flak battery on the eastern side of Vlieland, the Stirling crashing shortly thereafter into the dunes.

Since the New Year, fears that the Germans were planning a last-ditch stand in Denmark with large numbers of troops brought in from Norway had become an increasing concern for the Allies. As a result, Operation *Waxwing* was hatched to thwart German troops in Norway from travelling south into Denmark. To prevent the enemy from using the Norwegian railway for troop movements, local resistance fighters planned to cut the main line in Norway that ran from north to south. They were assisted in the task by No 161 (SD) Sqn, which supplied three Stirlings to fly 36 officers and men of the Norwegian Parachute Company to a DZ in Norway. Because of the extreme range of the DZ, at Trøndelag Orrevatn on the north Swedish border, the Stirlings staged through Peterhead, near Aberdeen. On 25 March Flt Sgt Harold Watson, a flight engineer with No 161 (SD) Sqn in Flg

Flt Lt Edward Kidd (standing far right) and his crew, who were killed on the night of 30/31 March 1945 when their No 161 (SD) Sqn Stirling LK119 was attacked by German nightfighters and downed over the forested hills at Andsmyra, near Hegland in Norway. Three more SD Stirlings were lost that night over Norway

Off George Witt's crew, flew on Operation *Waxwing*. He recalled;

'The drop was carried out near to a frozen lake that was enclosed by mountains with cloud cover on the tops. Several steep descents were made to find the DZ, and each time full engine power was used to get out again more fuel was used than planned. The DZ was eventually marked and Maj Bangstad and his men were dropped. The two other aircraft were then called in to the DZ, which was by then clearly marked. It became obvious that we had insufficient fuel to reach Wick and were given permission to land at Sumburgh.'

Waxwing was successful, with the group cutting the main railway line and destroying vital infrastructure, thus preventing the Germans from using it.

On the last day of the month nightfighters from *Nachtjägerstaffel Norwegen* were responsible for shooting down three Stirlings. No 161 (SD) Sqn's LK119 (flown by Flt Lt Edward Kidd) on mission Bit 14 to southern Norway was set on fire, causing it to explode in mid-air and crash into thick forest at Andsmyra, near Hegland in Norway. Two aircraft from Shepherds Grove, in Suffolk, also fell to their guns, No 196 Sqn's Flt Sgt D V Catterall (in LJ888) and his crew dying when their Stirling came down in Brastad Wood, near Arendal, and No 299 Sqn's LK332 (flown by Flt Lt Ranulf Trevor-Roper) crashing at Vierli, on Vegars Moor. No 196 Sqn also lost Plt Off Clarence Campbell RAAF and crew (in LK197) that same night after their aircraft disappeared without trace while carrying ten containers and four packages on a resistance supply mission.

Stirlings flew 72 sorties during April for the loss of seven aircraft. On the 2nd, No 196 Sqn's LK193 (flown by Flg Off Neville Carroll RAAF) crashed into the sea near Sheringham shortly after take-off, cause unknown – the bodies of all the crew were recovered. Two other Stirlings, one each from Nos 190 (PK227, flown by Flg Off Sir Chandos Wren Hoskyns) and 299 Sqns (LJ942, flown by Plt Off Charles Dillon), did not return from their sorties to Denmark. However, Dillon survived to make it back to Britain, although he was to die later in a Stirling that crashed at Rennes on 7 October 1945, which also claimed the lives of six women passengers.

Denmark remained the focus of many drops that month, but Holland was visited too. No 196 Sqn's Stirling LK305 (flown by Flt Sgt Frederick Vernon) ditched in the Wadden Sea off the Dutch coast in the early hours of the 11th (there were no survivors), while the following night during supply operations to a DZ near Lekkekerk, No 570 Sqn lost LJ638 (flown

LEFT
The wreckage of Flt Lt Alan Aitken's No 161 (SD) Sqn Stirling IV LK209/MA-T lies scattered across the dunes on the Dutch island of Vlieland – it is seen here soon after war's end. Aitken and all bar the rear gunner were killed when the aircraft was brought down by a coastal flak battery on 23 March 1945. Note what appear to be holes made by the flak in the tailfin (*Collection Dirk Bruin – Vlieland*)

by Flt Lt G E Sharp), which crashed at Niewerkerk-Ijssel. Sharp and Flt Sgt Basil Rowland evaded.

The night of 11/12 April saw the RAF's biggest supply drop of the occupation to the Danish resistance. At least 35 missions were flown that night, and weapons were dropped at 26 DZs in Jutland, one at Funen and eight on Sealand. The RAF's only loss was No 299 Sqn Stirling PK229 on its return flight from Tablejam 149 (DZ Jarl at Holmene, west of Fjerritslev). After dropping its supply canisters, the aircraft crashed into the North Sea off the coast of north Jutland, near the small community of Tornby, cause unknown. The body of the aircraft's pilot, Flg Off William Curry, was found washed up on the beach near Tornby on 7 June, followed two days later by that of the navigator, Flt Sgt Frank Cairns, but the rest of the crew were never found.

On 22 April, No 570 Sqn's Flg Off Geoff Mombrun flew an SOE mission to Denmark in Stirling LJ645. His aircraft was badly hit by flak over the Jutland coastline and crash-landed in a field north of Aarhus, killing three of the crew and injuring the rest, including Mombrun, who managed to escape from the aircraft before it exploded in flames. All three survivors were taken prisoner by the Germans within a few hours of the crash, Mombrun having suffered extensive burns. He died in hospital four days later.

With the end of the war in Europe in May, No 161 (SD) Sqn's Stirlings carried out their final wartime duties with supply drops and the repatriation of Allied PoWs before the unit was disbanded at Tempsford on 2 June 1945. No 38 Group's Stirlings also joined in the repatriation flights before their respective units were disbanded as well.

Wg Cdr Clive Stanbury took command of No 624 (SD) Sqn in December 1943. His courageous leadership while serving with Wellington IC-equipped No 70 Sqn in North Africa saw him awarded first the DFC and then the DSO within one month in late 1942. After the war Stanbury flew RAF Canberra B 2 WH699 *Aries IV* in a pioneering navigation proving flight over the magnetic North Pole in February 1954

OVERSEAS SD ACTIVITY

Most of the RAF's SD operations to southern Europe and the Balkans were flown from bases in North Africa and southern Italy. They involved mainly Halifaxes and Liberators, although Stirlings played a brief part for a short spell in the summer of 1944.

The first unit to fly the type in the SD role in-theatre was No 148 (SD) Sqn, which had formed at Gambut Main (No 1) in Libya on 14 March 1943 when the Special Liberator Flight was renumbered. The unit initially operated in the SD role with Liberator IIs and Halifax IIs, dropping agents and supplies to resistance organisations in Greece, Crete, Serbia and Yugoslavia. In January 1944 the squadron moved across the Mediterranean to Brindisi, in southern Italy, from where in the coming months it expanded its coverage to include Poland, Austria and Czechoslovakia. In February 1944 a Lysander Flight was formed to fly operations to Greece, Corsica and the south of France.

In November, No 148 (SD) Sqn began to receive Stirling IVs to join its inventory of Lysanders, Liberators and Halifaxes. Only four Stirlings were allocated to the squadron, however, namely LK176, LK181, LK186 (or LK189 – official records differ) and LK249, but none was ever flown operationally. The squadron eventually disbanded in Egypt in January 1946.

The second unit to receive Stirlings in North Africa was No 624 (SD) Sqn, which had formed at Blida, in Algeria, on 22 September 1943

by renumbering No 1575 (SD) Flight. It initially employed Halifax IIs and Vs to drop agents and supplies to resistance groups in southern Europe and the Balkans until Stirling IVs were added to the squadron's strength from July 1944. These new arrivals added their weight to resistance supply operations in the lead-up to the Allied invasion of southern France, codenamed Operation *Dragoon*, which commenced on 15 August.

The squadron's first operation with the Stirling was flown on 29/30 July when three crews, including one skippered by the squadron CO, Wg Cdr Clive Stanbury, took British, French and American Special Forces teams to DZs at Brovès, northwest of Cannes, Drôme and in the Alps de Haute Provence to cut enemy lines of communication.

During the first few weeks in August the squadron suffered several instances of accidental damage to its Stirlings from forced landings and take-off swings (for which the Stirling was notorious). On the 18th, Plt Off McClure force-landed LK178 in poor weather conditions, with one of the crew's despatchers being killed. That same day Flt Sgt Kenneth Pole and all his crew were killed when their Stirling (LJ984) crashed in bad weather near Raghala, in Algeria. On 13 September, WO Kirk was flying LK187 at low level near Castiglione when the Stirling crashed into the Adriatic after suffering engine failure. Three crew members were drowned.

After the American-led invasion of southern France, No 624 (SD) Sqn was slowly wound down. The Stirling's spell with the unit was to be short-lived, as No 624 (SD) Sqn was reduced to 'number basis' on 5 September and officially disbanded on the 24th, with personnel transferred to other SD squadrons. The Stirling's swansong turned out to be the squadron's only daylight operation, which was flown by ten aircraft on 4/5 September to a DZ near Cannes, where 235 supply containers were dropped. Over the next two weeks the redundant Stirlings were ferried to No 144 Maintenance Unit (MU) at Maison Blanche, in Algeria, by the squadron's pilots.

WO Bert Hanmore's No 148 (SD) Sqn crew – who christened themselves 'Hanmore's Heroes' – with their Stirling IV at Blida, in Algeria, in 1944. These men are, from left to right, Sgt Ron McAlister, Flt Sgts Jim Hillier and Wally Potts, WO Bert Hanmore, Sgt Al Rose and Flt Sgts 'Mac' McDonald and 'Cam' Currie. Note the propeller spinners and engine cooling fans to improve the aircraft's operational performance in the hot conditions of North Africa (*Campbell Currie*)

CHAPTER FIVE

AID FROM THE SKIES

In early 1943, when the Air Ministry recognised that the Stirling had reached its development potential as a heavy bomber, trials were held using Mk I BK645 to see how the type performed when towing a loaded Horsa glider. Even without the removal of the front and mid-upper gun turrets to save weight, the first signs were encouraging. Moreover, the Stirling suffered from none of the engine overheating problems experienced by the Albemarle when towing a loaded glider. More flight trials followed using the first two Mk IV conversions, EF503 and EF506.

The Mk IV differed from its Stirling predecessors by carrying a crew of five, while its most obvious characteristics came from the removal of the dorsal and nose turrets and the replacement of the latter with a rounded transparent Perspex fairing. The aircraft was cleared to carry up to 22 paratroops and 12 supply containers, with a 6 ft x 4 ft hatch cut into the floor of the Mk IV's rear fuselage providing easy and safe egress in flight from the Stirling. A retractable tubular metal-framed tail guard (or strop) was fitted beneath the rear fuselage to prevent parachute static lines from fouling the tailplane. For glider-towing a horseshoe-shaped metal bridle was attached below the tailplane, wrapping around the tail of the aircraft underneath the rear turret. A tow rope could be attached to the bridle to connect the tug with the glider. The Mk IV was still able to be used as a bomber, and could carry a load of up to 17,000 lbs.

Marshalling and take-off methods varied from airfield to airfield. At most of them the gliders were double-lined on the runway, tugs on either side. Here, with the tailfin of the Stirling tug in the foreground and the heavy tow rope snaking back along the runway to the Horsa, groundcrew attach the metal 'Lobel' fitting to the nose of the glider at an unidentified airfield. Thus lined up, rope attached to tug and glider, hook and intercom tested, it was possible for Horsas to be towed off at one-minute intervals

Changeover to Mk IV production began at the Short Brothers & Harland factory in Belfast in December 1943, with 461 examples eventually being built, plus another 134 Mk IIIs that were converted to Mk IVs.

First to receive the new Stirling IV in January 1944 was No 299 Sqn at Stoney Cross in the heart of the New Forest. It was quickly followed by Nos 190, 196 and 620 Sqns. The latter two had been redeployed from Bomber Command in November 1943 to reinforce the newly formed No 38 Wing, soon to become No 38 Group, which oddly came under the operational control of Air Defence of Great Britain (ADGB) following the dissolution of Fighter Command in November 1943 to form the 2nd Tactical Air Force and ADGB. They were joined later by Nos 295 and 570 Sqns, which exchanged their Albemarles for Stirling IVs in July 1944. Flying from Harwell, in Oxfordshire, No 295 Sqn was under the command of Wg Cdr B R Macnamara, while No 570 Sqn's CO was Wg Cdr R J M Bangay.

Although the core personnel of the new Stirling squadrons in No 38 Group was provided by battle experienced crews from Bomber Command, more men were needed to bring the units up to full operational readiness. These came primarily from bomber crews undergoing operational training at No 81 OTU at Sleap, in Shropshire, before they moved on to No 1665 HCU at Tilstock, also in Shropshire, for conversion to the Stirling. It was at the latter location that flight engineers joined the new crews prior to their posting to one of the No 38 Group squadrons.

No 190 Sqn was reformed with Stirling IVs in No 38 Group at Leicester East on 5 January 1944, having previously flown Coastal Command Catalinas from Sullom Voe, in the Shetlands. Many of its new crews were posted in directly from No 1665 HCU, and Wg Cdr Graeme Harrison arrived on 25 January to take command of the squadron.

With previous operational experience flying Stirling IIIs in Bomber Command from Witchford between July and November 1943, No 196 Sqn was transferred to No 38 Group at Leicester East on 1 December and began to exchange its Mk IIIs for Mk IVs the following month. Wg Cdr Norman Alexander was the unit's new CO.

Formed on 4 November 1943 at Stoney Cross from 'C' Flight of No 297 Sqn, No 299 Sqn received its initial Stirling IVs in January 1944 and flew its first operation – an SOE mission to France – on 5 April. The unit's CO from December 1943 until his loss in action over Arnhem in September 1944 was Wg Cdr P B N Davis.

Under the command of Wg Cdr Donald Lee, No 620 Sqn was formed at Chedburgh on 17 June 1943 as a bomber unit in No 3 Group. It flew its first operation two nights later to Le Creusot, in France, and continued to take part in the night offensive until 27 November, when the squadron transferred to No 38 Group and the airborne role. Based initially at Leicester East, No 620 Sqn re-equipped with the Stirling IV in February 1944 and almost immediately began supply drops to SOE forces while continuing to train for its airborne role with gliders and paratroops. The unit moved to Fairford on 18 March 1944.

Within a month the four squadrons were ready for action, which began on 3/4 February with a supply drop to the French Resistance. No 38 Group's involvement in SD operations grew in the coming months, and for the rest of

the war its Stirlings remained engaged in a variety of missions to dropping zones in France, the Low Countries, Denmark and Norway as detailed in the previous chapter. However, No 38 Group's main raison d'être was towing Horsa gliders into battle and dropping paratroops, and so training for the Stirling squadrons and their crews began in earnest in February 1944 with large scale exercises involving the army's Glider Pilot Regiment and its pilots.

Waiting to help open up the Second Front, Stirlings and crews of No 196 Sqn are seen lined up on the runway at Keevil, in Wiltshire, on the eve of D-Day. The aircraft have been adorned with black and white invasion stripes to aid identification by Allied forces in the air, on the ground and at sea

D-DAY – THE GREAT CRUSADE

When D-Day finally arrived and the time came to put all they had learned into practice, the four Stirling squadrons were at the forefront of airborne operations. At a final briefing at 1400 hrs on 5 June, the crews of Keevil's two Stirling units (Nos 196 and 299 Sqns) were honoured by the appearance of the AOC No 38 Group, Air Vice-Marshal Alan Hollinghurst, who informed them that the operation was 'on' for that night in spite of the weather. The diarist for No 299 Sqn, navigator Flg Off Russel Bassarab RCAF, was moved to write in the operations record book later that day about the atmosphere on the airfield;

'The scenes around the aircraft before take-off on this first operation of the Second Front were memorable. The aircraft, totalling 46 Stirlings from the station, were lined up in sequence at the end of the runway and the troops were busily engaged in fitting their parachutes, helped by willing groundcrews. One will never forget the tremendous spirit and enthusiasm of these troops from the 12th Battalion, 6th Airborne Division, who were obviously just aching to "have a go" at the Hun.'

In the early hours of 6 June, Keevil's Stirling crews joined those of Nos 190 and 620 Sqns from Fairford in the first action over Normandy. The 69-strong force played a crucial part in the main operation to seize the vital Orne bridgehead (Pegasus Bridge) and secure the Allied left flank, dropping airborne troops of the 5th Parachute Brigade in Phase II of Operation *Tonga* on DZ 'H', an area covering roughly 2.5 square miles on the eastern side of the river Orne.

Most of the crews that took part in *Tonga* made it home again to their bases at Fairford and Keevil before breakfast. However, Fairford's No 620 Sqn fared badly, losing three aircraft from the 23 it despatched to deadly light flak – EF295, flown by 'A' Flight commander Sqn Ldr Wilmot Pettit RCAF; EF268, flown by Plt Off Irvine Caskey, RCAF; and EJ116, flown by Flt Sgt Albert Barton RAFVR, as well as four more squadron aircraft that sustained damage but made it home again. Tragically, eight paratroopers from No 591 (Antrim) Parachute Squadron, Royal Engineers, who miraculously survived the crash of EJ116 in the grounds of the Château de Grangues, near Dives-sur-Mer, were executed by the Germans.

Heading across the Channel to consolidate the Normandy bridgehead, Stirling IVs tow Airspeed Horsa troop-carrying gliders towards the French coast on the evening of 6 June 1944. Inside the gliders are infantry of the 6th Airlanding Brigade, tasked with reinforcing the 6th Airborne Division

Keevil lost two Stirlings, No 196 Sqn's LJ841 (flown by Flt Lt Fred Gribble RAFVR) and No 299 Sqn's LJ819 (flown by Flt Sgt Jack Gilbert RAAF) both being hit by light flak. LJ841 was returning home and crashed in flames at Cagny, while LJ819 *Hellzapoppin*, carrying 20 paratroopers and nine weapons containers, was hit after aborting its first run-in to the DZ and probably crashed into the sea. No trace of the aircraft or its crew and passengers was ever found.

The aircrew that made it back to their bases at Keevil and Fairford grabbed a few hours of fitful sleep while the groundcrews worked feverishly to refuel, rearm and ready the aircraft for their second trip to France in less than 24 hours. Between 1903 and 2000 hrs, Stirlings towing 69 Horsas containing divisional troops, vehicles and artillery of the 6th Airborne Division took off and crossed the Channel to deliver their charges on LZ 'W', west of the Caen Canal. A battle was raging here as the gliders swooped down to make their landing, and both sides paused momentarily to watch the compelling spectacle. No 299 Sqn's LJ855 (flown by Flg Off James Clark RCAF) was lost when it was hit by flak and crashed into the sea on the return flight.

No 620 Sqn's LJ849 (flown by Flt Lt Gordon Thring RCAF) was leaving the LZ when the aircraft was blown onto its back by the explosion of its port wing tank after it was hit by flak. Miraculously, the Stirling righted itself unaided and crash-landed in a ploughed field two miles west of the river Orne at Périers-sur-le-Dan, near Plumetot. The crew were unhurt, although they were promptly captured by German troops. In a further twist of fate their captors decided to surrender to the Thring crew a few days later – one German officer and 61 other ranks! Thring and his men handed over their captives to some surprised Canadian soldiers before eventually returning to their base at Fairford.

Flt Lt Den Hardwick's No 299 Sqn Stirling IV EF267 *The Saint* on its dispersal at Keevil in June 1944. In the early hours of D-Day the Hardwick crew successfully dropped Capt George Holland and men of 225 Parachute Field Ambulance RAMC over Normandy. *The Saint* was eventually shot down near Wijchen on Day 3 (19 September 1944) of Operation *Market Garden*

With their contribution to *Overlord* complete, the Stirling squadrons of No 38 Group returned to flying SOE supply missions. Their next major commitment came in September when Field Marshal Bernard Montgomery, commanding the 21st Army Group, persuaded the Allied supreme commander, Gen Dwight D Eisenhower, to support his plan to end

the war by Christmas. Better known by its codename *Market Garden*, the operation was a disaster and has passed into history for many of the wrong reasons.

ARNHEM – THE BRIDGE TOO FAR

Six Stirling units – Nos 190, 196, 295, 299, 570 and 620 Sqns – played their part in the largest airborne operation yet undertaken, *Market Garden*. The plan was Field Marshal Montgomery's brainchild, which he divided into two halves. *Market* was the airborne component, while *Garden* was the ground plan. The aim of Operation *Market* was to deliver more than 34,600 men of the US Army's 101st and 82nd Airborne Divisions, the British 1st Airborne Division and the 1st Polish Independent Parachute Brigade behind the German frontline along a corridor north of Eindhoven. Their primary objective was to capture the road bridges across the great rivers of Holland – the Maas, Waal and Lower Rhine, and five other waterways. The 101st Airborne Division was to secure bridges from Eindhoven to Veghel, the 82nd Airborne Division was tasked with capturing the bridges from Grave to Nijmegen and the Groesbeek Heights, and the British 1st Airborne Division was to take the bridge at Arnhem and the high ground that lay to the north.

The massed use of airborne forces was critical to *Market Garden*'s success, but owing to the fact there were not enough transport aircraft to carry all three divisions in one lift it became necessary to spread the operation over three days.

On the ground, the plan in Operation *Garden* was for the Second British Army led by XXX Corps (commanded by Lt-Gen Brian Horrocks) to drive northwards along a narrow front to link up with the airborne divisions

Men of the 21st Independent Parachute Company carry out final checks to their kit and weapons before emplaning at Fairford in the early morning of 17 September 1944. Behind them are Stirlings of No 620 Sqn waiting on the taxiway, marshalled ready to receive their human cargoes, with take-off for Arnhem at around 1000 hrs

Light flak rises to greet a formation of Stirlings as they fly low over the drop zone at Arnhem to deliver supplies. Flt Lt Hector McDonald of No 570 Sqn recalled, 'On Monday, 18 September 1944, we were part of a large group of Stirlings that went to Arnhem and dropped supplies for the 1st Airborne Division. There was some flak and we took a machine gun round or two in our left main wheel tyre'

within 48 hours. Flanking attacks by XII and VIII Corps on either side of the advance protected the drive north. With four divisions eventually established north of the Lower Rhine, the British XXX Corps would then lead the Second British Army east to outflank the Siegfried Line and encircle the Ruhr. Field Marshal Montgomery believed that if his 'gamble' in *Market Garden* succeeded then the war could be brought to a successful conclusion by Christmas 1944.

Airborne troops were carried to Holland by a combined fleet of 1438 USAAF and RAF C-47/Dakota transport aircraft and 321 RAF Stirlings and Albemarles. Some 14,589 Allied troops were landed by Horsa and Hamilcar gliders and 20,011 by parachute, as well as 1736 vehicles and 263 artillery pieces. Supplies of equipment, ammunition and other materials were delivered by glider and parachute in re-supply drops in the days that followed.

But instead of being relieved as expected, the British paratroops in and around Arnhem were cut off when the Second Army's spearhead, XXX Corps, was slowed down by relentless German counterattacks. Only a small part of the British 1st Airborne Division (commanded by Maj-Gen Robert 'Roy' Urquhart) actually reached the Arnhem bridge, while most of the rest were held up on the outskirts of the town by determined attacks from two SS Panzer divisions. Eventually, after nine days of bitter fighting – and despite determined and valiant re-supply operations flown by the RAF and USAAF – the survivors of the division were evacuated back across the Rhine.

Stirling crews were in the vanguard of Operation *Market*. Shortly after 1000 hrs on 17 September, 186 Pathfinder troops of the 21st Independent Parachute Company emplaned at Fairford in 12 Stirlings from Nos 190 and 620 Sqns. With a fighter escort, they flew by an indirect route to dupe the enemy defences before turning towards their destination. The Stirlings arrived over the DZ at 1240 hrs, whereupon they ran in at 500 ft to drop the Pathfinders. Their job, as the first troops on the ground, was to mark out landing and drop zones and set up Eureka beacons and other identification aids for the incoming glider force.

Apart from the 12 Stirlings from Fairford carrying troops of the 21st Independent Parachute Company, the entire RAF effort that day was devoted to glider-towing. In perfect late summer weather, Stirlings of Nos 190 and 620 Sqns made the first lift of glider-borne infantry from the 1st Airlanding Brigade to Arnhem in Horsas of D Squadron, Glider Pilot Regiment (GPR). The latter were carrying both men and jeeps. Forming up over Hatfield, in Hertfordshire, at 2500 ft, with the huge fleet of other transport aircraft, the formation crossed the Suffolk coast at Aldeburgh in loose pairs and made landfall in Holland at West Schouwen, before continuing via 's-Hertogenbosch to LZ 'Z'.

Following on immediately behind them were 143 transport aircraft carrying paratroops of the 1st Polish Independent Parachute Brigade, along

Stirlings of No 570 Sqn fly above the clouds on their way to Arnhem for a supply drop on 19 September. Nearest the camera is LJ883/V8-K flown by Flg Off William Kirkham, whilst the furthest aircraft is V8-W, skippered by WO Parker RCAF. The photograph was taken from the cockpit of LK117/V8-F, flown by Flg Off David Campbell. On 23 September Kirkham was flying LJ883 when it was hit over the DZ and came down in flames at Planken Wambuis, northwest of Arnhem. Only the rear turret gunner survived the crash, his turret breaking off when the Stirling hit the ground

with 354 tug/glider combinations with more troops of the 1st Airlanding Brigade, which included Stirlings of Nos 196, 295, 299, 570 and 620 Sqns.

Flying from Harwell, in Oxfordshire, No 295 Sqn's Stirlings towed 25 Horsa gliders from A Squadron GPR carrying the 1st Airborne Corps HQ to LZ 'N'. Fifty Stirling/Horsa combinations from Nos 196 and 299 Sqns arrived over DZ 'Z' carrying paratroops from the 1st Polish Independent Parachute Brigade, who made a successful landing. No 570 Sqn's Stirlings (also from Harwell) flew 20 glider-towing sorties carrying the 1st Airlanding Light Regiment, Royal Artillery, to LZs 'Z' and 'N' without loss. Its diarist recorded, 'Magnificent fighter cover and ground strafing support was provided by Fighter Command and the USAAF. Very slight ineffective light flak was experienced by the formation at Overflakee and 's-Hertogenbosch, but all 12 gliders were successfully released at the LZ'. Free of their charges, the Stirlings dropped their tow ropes and set course for home, climbing to 7000ft.

Sunday, 17 September had gone surprisingly well, but this would all change the following day. The good weather broke on the 18th, with thick autumnal fog in the morning followed by heavy rain. The planned Second Lift that took off mid-morning from airfields in southern England included glider-borne reinforcement troops, jeeps, scout cars and artillery pieces carried by Stirling/Horsa combinations from Nos 190, 196, 299 and 620 Sqns to LZs 'X' and 'Z'. Nos 295 and 570 Sqns carried headquarters staff and RASC troops in Horsas to LZ 'X'.

Enemy opposition was a little more in evidence than the day before. Supply drops were carried out at a lower level of around 600 ft and most aircraft suffered from some flak damage. No 570 Sqn's LJ594 (flown by Plt Off David Balmer RCAF) was badly hit by flak at Overflakee and made a wheels-up landing in a field between the villages of Bosschenhoofd and Zegge after some of the crew had bailed out. All made it safely back to England except for the flight engineer and rear gunner, who became PoWs, and one of the despatchers who was killed in the crash-landing. The squadron's LJ913, flown by Flt Lt Dennis Liddle, was also hit by flak and belly-landed at Schaarsbergen. All the crew survived.

The poor weather of the previous day continued on the 19th, with fog in the morning followed by rain. After a series of successful drops, the

British plans for *Market Garden* soon started to unravel. There were many more German troops in the area than anticipated and most of 1st Polish Independent Parachute Brigade was quickly cut off from Arnhem. Only the 2nd Battalion under Lt Col John Frost managed to reach the Arnhem bridge itself. Despite the arrival of the rest of the 1st Airborne Division on the landing grounds west of Arnhem on the 19th, no further progress could be made towards the embattled 2nd Battalion. Poor liaison between air and ground forces meant the latest troop positions on the ground were not known to the RAF, which resulted in the re-supply drops of food, ammunition and equipment by Stirlings and Dakotas falling between the British and German forces – only 31 tons out of 390 were received by the 1st Airborne Division. Sadly, this was a pattern repeated over the next few days, and the RAF's Stirling and Dakota squadrons paid a heavy price in lost aircraft and crews on their risky low-level re-supply flights.

The third lift was flown on this day, with Fairford's Nos 190 and 620 Sqns flying troops and vehicles into LZ 'X' without loss, while No 295 Sqn despatched 16 Stirlings from Harwell. Two were badly damaged en route, 13 made their drop and one failed to return. This was Flt Sgt Ray Hall and crew in LK170, whose flak-damaged Stirling crashed vertically into the ground at Eede. All but three of No 295 Sqn's Stirlings that made it home to Harwell had suffered serious flak damage.

Keevil's two resident squadrons also fared badly. No 196 Sqn lost Australian WO Keith Prowd and his crew in EF248, who were carrying 24 containers and four panniers to re-supply the beleaguered remnants of the 1st Airborne Division in their defensive pocket around the village of Oosterbeek (DZ 'V'), west of Arnhem, when their Stirling was hit by 20 mm light flak and burst into flames. Mike Stimson, who was a wireless operator on the squadron, remembers, 'Keith Prowd's crew were killed when they all had to bail out with two engines on fire and a third overheating and about to catch fire. They bailed out so high they were shot to pieces in their harnesses as they floated down. Keith saw four of his crew hanging by their harnesses in the trees all shot up'. Prowd and one other crewman survived to become PoWs, but the horrors of Arnhem stayed with him for many years after the war.

The Stirling of No 299 Sqn's CO, Wg Cdr Peter Davis, was hit by flak, setting fire to the containers of petrol in the bomb-bay. Still leading his squadron, Davis flew on to release his load of supplies before Stirling EF319 dropped out of formation and crashed in flames at Schaarsbergen, a few miles north of Arnhem. Five of the crew managed to bail out, but Fred Mason, the navigator, was killed whilst descending to the ground. Davis, an RASC despatcher and a staff officer from No 38 Group who was along for the ride perished in the crash. Their bodies were buried where they fell, beside the Kempenbergerweg. Davis' award of the Distinguished Service Order was gazetted one week later. His loss was a double tragedy for his family, for Davis' older brother Henry had died four years earlier in the Battle of Britain flying Blenheims with No 59 Sqn.

Flg Off Geoffrey Liggins RAAF in No 299 Sqn's LK148 managed to drop his load of 24 containers and seven panniers before his aircraft was hit badly, compelling him to attempt a force-landing on the banks of the

Rhine two miles south of Driel. The crew were injured but, amazingly, they survived and eventually made it home. Also lost was EF267 *The Saint*, which crashed at Wijchen.

Harwell's other unit, No 570 Sqn, also suffered casualties. Flt Sgt Charles Culling's LK121 was badly damaged by flak at Overflakee and crashed at Opheusden, killing all the crew. Their glider cast off and was seen to make a reasonable landing. LJ944 was hit by flak in both port engines but Flt Lt A Hudson successfully belly-landed at Ghent, in Belgium, with no casualties among the crew. LJ647, skippered by Plt Off E D Hincks, was badly damaged by flak over the DZ, although its pilot made a successful crash-landing near the Dutch town of Grave. The crew were uninjured and eventually returned to England. When EH897 was shot up by flak and set on fire after leaving the DZ, it crashed behind enemy lines at Schaarsbergen. The pilot, Flg Off Fred Mortimore, and his wireless operator managed to evade, although the rest of the crew became PoWs.

Fog and rain continued as a backdrop to operations on D+3, 20 September, which proved to be a black day for No 196 Sqn when no fewer than six of its Stirlings failed to return, all victims of the deadly flak. Crews circling in a holding pattern awaiting their turn to drop supply canisters witnessed many friends falling in flames. Even so, it failed to dampen their determination, and they descended lower to improve the accuracy of their delivery to the DZ. Fortunately, most of the crews shot down survived the ensuing crashes but, sadly, only 13 per cent of the supplies reached the 1st Airborne Division because the DZs had been overrun by the Germans. Casualties on the ground were worsening and supplies of food and water were becoming critical.

No 196 Sqn's toll of missing aircraft was indeed alarming – LK556 (flown by Flg Off J W McComie) crashed between Elst and Valburg, killing one crew member and two army despatchers; WO William Tait RCAF and crew were all killed when their Stirling, LJ988, came down on the open air swimming pool at Doorwerth; Plt Off J F Ellis (in LJ945) was wounded when his Stirling was hit and badly damaged by flak, but he still managed to pull off a successful crash-landing north of Brussels; WO George Oliver RAAF (in LJ851) was shot down before reaching the DZ, crash-landing near Eindhoven, but all the crew survived; Flt Sgt J P Averill's Stirling (LJ840) was fatally hit by flak and set on fire over the DZ, although the crew safely abandoned the aircraft before it crashed at Batenburg, in Gelderland;

Flg Off Hector McDonald RCAF (far left) and his No 570 Sqn crew at Harwell in the spring of 1945. Recalling the events of 20 September 1944, McDonald explained, 'I was preoccupied on the run-up [to the DZ], and when the flight engineer asked, "Can I come up and sit in the co-pilot seat, 'Mac'?" I replied, "Yes, but bloody well be quick". He had just strapped himself in when a 40 mm shell entered the cockpit and exploded in front of his fuel gauges. A few seconds earlier and it would have killed him' (*David McDonald*)

Plt Off W L Marshall (in LJ947) and his bomb aimer Plt Off G H Tole were wounded when their Stirling suffered flak damage, causing them to make a successful emergency landing near Brussels with both port engines dead.

No 295 Sqn's solitary loss on this day was Stirling LJ618, flown by Plt Off Neil Couper RNZAF. It was hit by flak and crashed at Druten, west of Nijmegen, with Couper being the only fatality.

No 570 Sqn's EF306 skippered by Flg Off Hector McDonald RCAF was badly shot up over the DZ, with two engines knocked out and both mainwheel tyres punctured. Nevertheless, McDonald made it across the Channel to pull off a successful crash-landing at RAF Benson, in Oxfordshire.

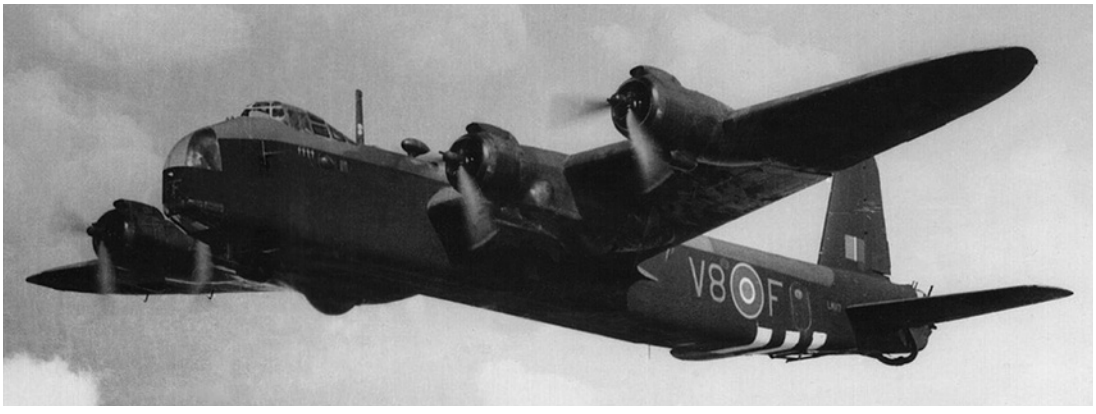
No 620 Sqn lost two aircraft. LK127 (flown by Flg Off Athol Scanlon RAAF) crashed in a marshy meadow at Heteren, bomb aimer Flt Sgt Ray Lamont RCAF being among four crew who bailed out. He came down in the Rhine, where he was brutally machine-gunned to death. Scanlon was found dead beside the crashed aircraft. Stirling LK548, skippered by Plt Off Maurice McHugh RAAF (a veteran of Operation *Tonga* and numerous SD flights), was hit by intense flak at 1500 ft on its run-in to the DZ, setting fire to the starboard aileron. After dropping its load of supplies, the aircraft was hit again, igniting the No 6 fuel tank inside the starboard wing and engulfing the wingtip in flames. These quickly spread to the whole wing and fuselage centre section. McHugh was struggling hard to maintain height when he was forced to give the order to abandon the aircraft. Three of the crew managed to bail out before the Stirling eventually crashed in flames in a field at Vorstenbosch, a mile east of Uden. The three who jumped evaded, but McHugh, the wireless operator, rear gunner and an army despatcher died in the crash.

Tucked away in the personnel file of Plt Off McHugh at the National Archives of Australia is a note from his mother that quotes from a letter she received from Flt Sgt Nick Gascoyne, the bomb aimer in her son's crew, who bailed out and survived;

'We took off that afternoon, 20 Sept, and reached our target with high hopes and very little opposition, but on making our "bombing run" encountered the most murderous flak I've ever beheld. Maurice made his run with the calm assurance of a veteran and we dropped our "load" accurately, but on coming out we were hit in several places and caught fire. The fire was pretty fierce and we had no hopes of ever putting it out, so the order to abandon in the same steady voice was given. Three of the crew managed to make it – myself being the last one. I'm sorry to say that Maurice, in his attempt to keep the plane in the air until the remainder were out, stayed with it till it hit the ground. I'm afraid that Maurice died fighting to gain control of the plane.'

This tragic insight into the final minutes of a brave man describes a desperate situation experienced countless times by RAF and USAAF aircrew during the Arnhem operation. How many more acts of bravery and personal sacrifice like this went unreported and unrecognised?

On 21 September the fight to the death had begun at Arnhem bridge. Small pockets of British paratroops were battling for their survival against an unforgiving foe. German tanks and heavy artillery were systematically



Skippered by Flg Off David Campbell, No 570 Sqn's LK117/V8-F suffered flak damage over Arnhem on 23 September 1944 (the crew's third *Market Garden* sortie in LK117) in an incident that wounded the rear gunner, Flg Off Lord Decies, in the shoulder. The aircraft was sent to the SEBRO works at Cambridge for battle damage repair. LK117 is seen here during the summer of 1944 prior to the Arnhem incident. Note the invasion stripes beneath the rear fuselage only, fully retracted parachute static line strop guard and glider towing bridle. There are four operations symbols on the nose beneath the pilot's window

blasting them out of the buildings they were defending. They eventually ran out of ammunition and were overwhelmed by their German assailants. At 1200 hrs SS-*Kampfgruppe Knaust* finally seized the bridge from Lt Col John Frost and the 2nd Parachute Battalion. They had fought valiantly without relief for 88 hours, the final 12 without food or water.

The tragedy on the ground was repeated in the air overhead, largely due to a lack of fighter cover and the murderous flak that contributed to the Stirling losses that day. Four of Keevil's aircraft went down over the DZ in rapid succession – No 299 Sqn's LK645 (flown by Flt Lt R T Turner) was hit by flak and crash-landed near Nordelyke; No 196 Sqn's LJ843 (flown by Flt Sgt Charles Green RAFVR) was also shot down by flak and crashed at Wageningen, all on board being killed; LJ928 (flown by Flt Sgt Ronald Waltrich RAFVR), also from No 196 Sqn, was shot down by a fighter and crashed at Doorwerth with one survivor; and LJ810, again from No 196 Sqn.

The latter aircraft, captained by WO Mark Azouz, was hit by flak on its run-in to the DZ and then fatally damaged in a vicious attack by three Bf 109s. Azouz held the wounded Stirling on course to allow his crew to bail out. The rear gunner, Flt Sgt Pete Bode, shot down the fighter leader but was then killed by return fire from his wingmen. Last to jump were air despatcher Albert Norton and pilot Mark Azouz. Norton survived, but Azouz was killed in mid-air as he hung beneath his parachute canopy. The Stirling continued in a shallow glide to crash on farmland near Niftrik en Hernen. Had Mark Azouz survived to be captured, as the son of an Armenian Jewish father and Polish Jewish mother, his chances of survival would have been slim at the hands of his Nazi captors.

Also lost that day was No 190 Sqn's experienced CO, Wg Cdr Graeme Harrison, who was killed in action with his crew and two RASC despatchers when their Stirling (LJ982) was hit by flak and crashed at Zetten, southwest of Arnhem. His aircraft was just one of seven No 190 Sqn Stirlings downed on re-supply operations on 21 September – LJ833, flown by Flt Lt Alexander Anderson RAFVR, was shot down by fighters and ditched in the Maas, three crewmen surviving; LJ943, flown by Plt Off Robert Herger RCAF, was hit by flak and crashed near Zetten, two crewmen surviving; LJ881, flown by Flg Off Brian Bebarfald RNZAF, was hit by flak and fighters and crashed at Andelst, three crewmen surviving; LJ823, flown by Flg Off Alf Farren, was first hit

by flak then attacked by fighters, after which the crew was ordered to bail out by the pilot prior to him attempting a crash-landing at Haren, near Demen – three of the crew died; LK498, flown by Flg Off F E Pascoe, was hit by flak and made a successful crash-landing behind enemy lines south of Escharen/Gassel; and LJ916, flown by Flg Off J S Hay, where all survived a crash-landing east of Tilburg.

No 295 Sqn despatched 11 aircraft, ten of which reached the DZ, but in spite of the defences being less robust than in previous days, one Stirling was lost – Plt Off Dennis Peel's LK115, which crash-landed near Nieuwenhuizen farm, Wolfheze, after being hit by flak. The two air despatchers were killed.

Two Stirlings from No 620 Sqn were lost to flak, Flg Off 'Nipper' McLeod putting his burning aircraft (LJ830) down at Renkum – the rear gunner and two despatchers were killed – and LJ946 being successfully belly-landed at Bennekom by Plt Off J C L Carey.

In the evening the weather improved enough for USAAF C-47s to fly the 1st Polish Independent Parachute Brigade to a DZ at Driel, but the operation proved to be a disaster. More bad weather en route caused many aircraft to turn back, while murderous flak claimed those that pressed on. Maj-Gen Stanislaw Sosabowski and some 750 surviving Polish troops landed under heavy fire at Driel, from where they planned to reinforce the British perimeter at Oosterbeek, on the north bank of the Rhine.

Friday, 22 September dawned misty, and most re-supply flights were scrubbed around midday. Poor weather continued to hinder air support missions and supply drops. Only a handful of men from the 1st Polish Independent Parachute Brigade made it across the river during the course of the day. Further to the south, the Germans launched major counterattacks. Finally, the 43rd (Wessex) Infantry Division reached Driel and linked up with the 1st Airborne Division.

Urgent calls for reinforcements by the 1st Airborne Division saw No 38 Group step once more into the breach on 23 September. Poor weather conditions prevented take-off until early in the afternoon, although visibility was clear over the DZ. On the run-in to the latter the Stirlings flew through a curtain of murderous flak. No 196 Sqn's Flg Off W A Sparks crash-landed Stirling LJ949 at Leende after being hit by flak. Sparks and his wireless op were slightly injured.

There were empty places at supper time in the officers' and sergeants' messes at Harwell that evening after No 570 Sqn lost five aircraft. Flg Off C M Beck and crew in Stirling LJ991 crashed near Nijmegen after their aircraft was severely damaged by flak over the DZ. Beck and his wireless operator survived, but the rest of the crew were killed. Flg Off B S Murphy (in LJ996) made a successful crash-landing at Ghent due to severe flak damage, while LK191, skippered by Sqn Ldr Frank Cleaver, crash-landed in Holland. The crew were all safe. The rear gunner in Flg Off William Kirkham's crew had a miraculous escape from certain death when his Stirling (LJ883) crash-landed at Planken Wambuis, between Arnhem and Ede. His rear turret broke off when the aircraft struck the ground, probably saving his life. The rest of his crew were killed. EF298, flown by Flg Off William Baker RCAF, was hit by flak over the DZ and it crashed soon afterwards in woodland near the village of Heelsum,

Seen at Rivenhall in 1945, LK280 was No 570 Sqn's new V8-F to replace LK117, which had been allocated to No 190 Sqn following its battle damage repair by SEBRO. LK280 went on to fly SOE sorties, as well as take part in Operation *Varsity* (the Rhine crossing) on 24 March 1945 with Flt Lt David Campbell as pilot. The aeroplane's propeller spinners were painted red, denoting that it was assigned 'A' Flight (*Author's Collection/David Campbell Jr*)

Oosterbeek, claiming the lives of its entire crew. They were buried among the trees beside their Stirling.

No 620 Sqn's CO, Wg Cdr Donald Lee, was shot down in Stirling LJ873 on his crew's fourth trip to Arnhem, but he succeeded in pulling off a successful crash-landing at Oss. Lady Luck was smiling on them that day because they all survived the experience and were back on the squadron within 24 hours.

Once again the fluid situation on the ground meant that many supply containers dropped by the Stirling squadrons never made it into British hands. The numerically superior German forces were slowly infiltrating the British perimeter around Oosterbeek, but they were still struggling to completely crush the 1st Airborne Division.

There were no re-supply flights sent to Arnhem on 24 September, allowing normal squadron life to return to the Stirling bases at Keevil, Fairford and Harwell. On the ground in Holland a truce saw 1200 wounded British and Polish paratroops taken into German captivity. The 1st Airborne Division had some 1800 exhausted men clinging forlornly to the hope of relief. Units of XXX Corps attempted to cross the river in strength to aid the beleaguered paratroops but their efforts came to nothing.

By 25 September British-based squadrons had ceased all re-supply operations to Arnhem. That morning Field Marshal Montgomery realised it was going to be impossible to hold a bridgehead over the Rhine at Arnhem so he ordered all of his surviving airborne troops to withdraw south of the river. Under the cover of darkness during the night of 25/26 September, the battle-weary remnants of the airborne army crossed the Rhine to relative safety with the help of the 4th Battalion Dorsetshire Regiment, which was part of the 43rd (Wessex) Division. Operation *Market Garden* had failed in its objective to capture bridges over the Lower Rhine, inflicting a costly defeat on the British Army.

Heavy losses were suffered all round during Operation *Market Garden*. On the ground, the butcher's bill was high – 1500 British and Polish troops had lost their lives and some 6200 were taken prisoner. The Stirling squadrons of No 38 Group suffered their share of casualties too – between 17 and 26 September 40 Stirlings had been shot down or badly damaged, with 105 aircrew killed. Overall, the aircraft losses in themselves were

catastrophic, representing roughly one-third of the group's Stirling force. No 190 Sqn at Fairford had suffered the highest number of casualties amongst the six squadrons, losing 12 aircraft and having 38 crew killed in 98 sorties. At Harwell, losses in aircraft and crews on No 570 Sqn during the operation were such that replacement crews had to be urgently posted in from No 295 Sqn (which had itself lost three aircraft and seven crewmen) and No 1665 HCU to keep it operational. The squadron lost 22 men and nine aircraft in 20 glider-towing and 84 supply sorties. When it came to operational commitments during *Market Garden*, the Stirling crews of Nos 196 and 299 Sqns had flown more glider and re-supply sorties to Arnhem than any other RAF transport units in Nos 38 or 46 Groups.

During October the six Stirling IV squadrons moved east to airfields in Essex, Nos 190 and 620 Sqns transferring from Fairford to Great Dunmow, Nos 295 and 570 Sqns from Harwell to Rivenhall, and Nos 196 and 299 Sqns from Keevil to Wethersfield. Night SOE drops quickly resumed, and these missions continued until the following spring, when the units were called upon again to tow gliders into battle, but not before an unusual assignment in early 1945.

LAST GASP AS A BOMBER

In January 1945 the decision was taken to use No 38 Group's Stirling squadrons in a tactical bombing role to support Allied ground forces in their preparation for the planned crossing of the river Rhine. This was the first (and only) time since they had been withdrawn from main force operations in November 1943 that Stirling squadrons were engaged in bombing German targets. A number of towns along the margins of the north Lower Rhine occupying key positions as transportation hubs or containing enemy troop concentrations were singled out for attack (Uedem, Kalkar, Weeze, Isselburg and Rees), as well as targets further to the south around Münchengladbach (Grevenbroich, Niederkrüchten and Arsbeck).

Nominally under the operational control of the 2nd Tactical Air Force, small groups of up to 30 aircraft at a time were drawn from the six Stirling IV transport squadrons. Each aircraft was loaded with 24 500-lb bombs, and crews used Gee to navigate and determine the release point for their bombs – this bombing aid proved to be critically important given the bad winter weather that these missions were typically flown in, resulting in generally poor visibility over the targets.

No 38 Group's Stirlings were not equipped with H2S, so the navigators relied on Gee and Gee-H to locate and bomb their targets. The maximum effective range of Gee was 300-400 miles, so the targets near the Rhine were well within reach, but those further inside Germany near Münchengladbach would have been at the extreme range of the system. However, Gee-H was fitted in some of the Stirlings. This aid combined Gee with an Oboe system that was operating in reverse, which meant the aircraft could navigate to the target area using Gee, then home onto a precise bomb-release point using H. Its range was greater than Gee, and unlike the latter its accuracy did not diminish with range. Gee-H was also much more accurate than either Gee or H2S.

Stirlings of No 190 Sqn prepare to take off from Great Dunmow on 24 March 1945 with Horsa gliders in tow as part of Operation *Varsity*, their destination being the lower Rhine, in Germany. In the foreground are the tow ropes used to tug the Horsa glider, waiting to be attached. They measured 350 ft in length and had a circumference of 3.5 inches. Each rope had a radio cable threaded through it to allow the tug and glider pilots to communicate with one another. The Horsa I had a 'Y' pull from the tail of the tug to each of the glider's wings, but when the Mk II entered service it had a 'straight' pull from the tail of the tug to the nose of the glider

The first raid by No 38 Group's Stirlings was conducted on 21 January 1945 when Nos 190 and 620 Sqns dropped 500-lb bombs and incendiaries on Niederkrüchten and Arsbeck, near Münchengladbach. A lull of ten days then followed until 1/2 February, when Nos 295 and 570 Sqn targeted Grevenbroich, which they hit twice more with Nos 190 and 620 Sqns before No 38 Group's attention switched to Kalkar, Uedem and Weeze on the 8th – the day after Field Marshal Montgomery launched his push towards the Rhine. The month-long battle to clear the west bank of the river saw some of the hardest fighting of the post-D-Day campaign.

Rees was bombed on 14/15 February and again six nights later, when three Stirlings were lost to enemy action in what hitherto had been relatively uncontested operations, then finally Xanten on the 26th/27th. The bombing had been carried out from between 3000 and 10,000 ft, but poor weather and bad visibility over the targets meant the results of the attacks could not be properly assessed.

On the last operation to bomb Rees (20/21 February) No 196 Sqn had lost two aircraft – LJ894 (skippered by the squadron's CO, Wg Cdr Maurice Baker) came down near de Rips, in Holland, having possibly fallen victim to high-scoring Ju 88 ace Hauptmann Heinz Rökker of 2./NJG 2 – he claimed six bombers destroyed that night. Baker was killed, but four surviving crew members parachuted to safety in liberated Holland. LK126 (flown by Flt Lt D R Campbell) was shot down in the circuit at Shepherd's Grove by a nightfighter intruder (again, possibly a Ju 88) that had followed the Stirling home across the Scheldt and over the North Sea. The only fatality was the rear gunner. No 299 Sqn's LJ896 (flown by Sqn Ldr Arthur Nathan Spear) was also lost that night, crashing at Goch, in Germany, after having been hit by flak near the target.

OPERATION *VARSITY*

The tough lessons learned at Arnhem were put into practice in the spring of 1945 when the Allies launched their final – and biggest – airborne operation of the war, crossing the river Rhine. The important lessons learned from *Market Garden* emphasised that any such undertaking had to be carried out in a single day, and should only proceed if ground forces could provide reinforcements quickly. Air superiority had to be established to suppress enemy flak and fighters to avoid the heavy losses of aircraft suffered over Arnhem. Another important factor was the need for good

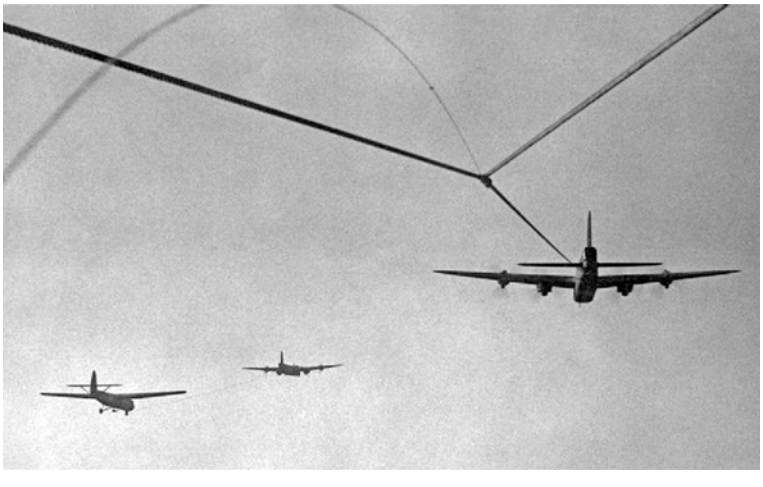
air-to-ground communication when dropping supplies onto DZs close to enemy forces so as to avoid materials falling into the wrong hands.

Simpler than *Market Garden* in its planning and execution, the objective of Operation *Varsity*, as the Rhine crossing was codenamed, was to establish a foothold on the eastern bank of the river around the German town of Wesel, before thrusting into the heartland of the Ruhr.

At daybreak on 24 March 1945 assault troops of the US Ninth and British Second Armies forced an amphibious crossing of the Rhine from Xanten, while two airborne divisions struck out from airfields in England and on the Continent. A sprawling air armada of 2931 transport aircraft and gliders converged on eastern Holland, where, four hours after the start of the ground assault, they dropped and landed east of the Rhine to seize and hold the high ground northwest of Wesel, secure local bridges over the Ijssel and then link up with the ground forces pushing across the Rhine. From shortly after 1000 hrs, they delivered some 21,680 Allied troops by parachute and glider in a single lift.

Involved in this enterprise were the six Stirling squadrons based at Rivenhall, Great Dunmow and Shepherds Grove, and Stirlings from the Operational and Refresher Training Unit (ORTU) at Matching, in Essex, where a maximum effort among all units saw 200 aircraft take off into the bright morning skies with Horsa gliders in tow. Thirty-two Stirlings of Nos 295 and 570 Sqns towed Horsas carrying airborne troops of the 1st Battalion, Royal Ulster Rifles and 12th Battalion, the Devonshire Regiment, which swooped down onto their LZs on the edge of Hamminkeln (LZs 'U', 'R' and 'P') at 1033 hrs, followed minutes later at LZ 'R' by further elements of the 12th Devons in 34 gliders towed by Nos 190 and 620 Sqns and the ORTU.

At 1048 hrs 28 Stirlings from Nos 196 and 299 Sqns delivered 28 Horsas that were carrying the 53rd Light Regiment Royal Artillery (Lt Regt RA) to LZ 'P', while Nos 295 and 570 Sqns took a further 28 gliders containing the Divisional HQ to the same location. This concentrated effort continued minutes later when six Stirlings from Nos 196 and 620 Sqns released gliders carrying the 4th Airlanding Anti-tank Battery (A/L A/T Bty) to LZ 'B', followed by 62 Stirlings and Horsas with airborne troops from the 3rd A/L A/T Bty, 53rd Lt Regt RA and artillery and engineers from 3 and 5 Para Brigade to LZs 'A', 'B' and 'P'. That all this was accomplished within the space of 27 minutes is impressive enough, but when it is considered that only two Stirlings fell to enemy flak, it is remarkable.



The view from a Horsa cockpit showing Stirlings of No 570 Sqn towing gliders carrying the 6th Airborne Division to LZ 'P' on the Rhine on 24 March 1945. Amongst the passengers in the Horsa on the left was the 6th Airborne Division's commander, Maj-Gen Eric Bols, who recalled, 'After my glider touched down I ran for the nearest ditch. Things were a bit hot on the LZ. I found an American "top sergeant" from a parachute unit of the 17th Division sharing the ditch with me'

No 196 Sqn's LJ979, flown by Flt Lt Henry van Renen RAAF, was successfully crash-landed at Overloon after it was shot up by flak. When No 295 Sqn's Stirling LK137,

flown by WO Horace Symmons, was hit by flak over the LZ and badly damaged, he ordered his crew to bail out and remained at the controls while they did so. Symmons gave his life for his comrades when the Stirling crashed at Kervenheim, five miles west of Xanten.

TOWARDS THE END

From April 1945 No 38 Group's Stirlings were kept busy alongside transport aircraft from the group's other squadrons carrying supplies and petrol out to the armies in mainland Europe, before returning home again with some of the thousands of newly liberated former PoWs. The restricted entry to the Stirling's rear fuselage made cargo loading difficult, and therefore only limited lifts were possible. However, ferrying Jerry cans of petrol to forward airfields was a notable exception. Flt Lt Ron Sloan and his No 295 Sqn crew flew one such supply mission on 18 April to the recently captured German airfield of Rheine. Getting there was not a problem, but when it came to landing on the cratered airfield things quickly changed;

'When we boarded N-Nan, our usual aircraft, it was with some difficulty that we made our way forward along the fuselage as it was stacked with roped Jerry cans, each containing about 4.5 gallons of high octane fuel, about four high on both sides. At a guess I'd say that there were possibly 400 in number.'

On turning finals into a busy Rheine airfield, LK132 caught the slipstream of the aircraft in front, causing the starboard wing to stall and dip. Sloan's instinctive corrective action saved them from disaster;

'I gave quick bursts of throttle to all four engines, regained a level keel and floated along above the runway for an extra 200 yards or so. I pushed the aircraft down onto the main wheels and waited what seemed an eternity for the tailwheel to settle. When it did I applied full brakes, but the aircraft with its highly stacked cargo had an unusual momentum and seemed loathe to slow down. It was only when, with the nose up, I saw we were running out of runway, and with my eyes now focused on the overshoot area I realised with horror that it was a mass of bomb craters.

'For a few seconds I developed a complete sense of helplessness, as with the control column fully back, throttles back against the quadrant stops and brakes screaming, there was absolutely nothing else I could do. N-Nan rolled quite slowly across the perimeter track, bounced a couple of times over piled earth and suddenly stopped with the starboard wing down about 20 degrees. I cut the engines and gave the order "Everybody out quick". This in fact was an unnecessary order because the aeroplane was firmly parked, tail on the perimeter track, port wheel on firm ground,

On a supply run to Germany on 18 April 1945 with a fuselage cargo of petrol carried in Jerry cans, a runway overshoot at Rheine caused Flt Lt Ron Sloan's No 295 Sqn Stirling IV LK132 to roll into a bomb crater, damaging its starboard main undercarriage leg

Allied occupation troops were flown to Norway on 11 May 1945 by the transport squadrons of No 38 Group. Here, men of the 1st Airborne Division arrive at Gardermoen airfield near Oslo. In the background can be seen the No 190 Sqn Stirlings that have flown them to Norway

but the starboard wheel and undercarriage about four feet down the slope of a huge bomb crater. The starboard engines, propellers and wing were totally clear of the earth.

'The "Passenger and Freight Department" at Rheine consisted of a tent containing a table and chair, and its sole occupant took details from each incoming pilot. I explained my predicament and asked about a tractor, boards and help of any kind. He looked at me pityingly. "Not a cat in Hell's chance. You'll have to leave your aeroplane behind. That's not important – it's the petrol on board that's important." "But it's not damaged", I said. "Look", he said impatiently, "in the frontline there's no time for repairs. If a thing doesn't work you scrap it and use a new one."'

Two days later, on 20 April, No 190 Sqn's CO, Wg Cdr Richard Bunker, died when his Stirling (LJ930) crashed in flames near Windelsham, Surrey, not long after taking off from Odiham for Great Dunmow, having just returned from Belgium with repatriated PoWs. Twenty-five-year-old Bunker's death was made all the more tragic because he had flown operationally with Bomber Command and No 38 Group since the beginning of the war.

Further tragedy struck several days after VE Day on 10 May when three Stirlings crashed in bad weather while carrying troops of the 1st Airborne Division to Norway to oversee the German surrender in Operation *Doomsday*. Two aircraft from No 190 Sqn and another from No 196 Sqn were lost, along with the lives of 34 soldiers and aircrew, including the AOC of No 38 Group, Air Vice-Marshal James Scarlett-Streatfield. He was a passenger in No 190 Sqn's LK297 (flown by Sqn Ldr Douglas Robertson RCAF) and was travelling to Norway to accept the surrender of the German occupation forces. It is understood that Robertson had experienced some difficulty in receiving signals from the Eureka transmitter at Gardermoen, and in trying to find a visual reference point on the ground by which to navigate, he came down too low in thick cloud, fog and rain, which caused the Stirling to crash into a hillside near Oslo and explode. The wreckage was not found until a month later.

Shortly after LK297's demise No 190 Sqn's LJ899, flown by Flg Off Eric Atkinson, ditched in Lake Røgden, just over the Norwegian border in Sweden, after control of the aircraft was lost in atrocious weather conditions. All of the crew, together with 14 of the 18 passengers, survived the experience.

The last Stirling lost was No 196 Sqn's LK147, flown by Flg Off John Breed RAAF. After breaking cloud at just 200 ft, the aeroplane stalled and crashed into a steep-sided ravine close to the end of the runway at

Gardermoen, killing all 20 on board. For these men to survive a shooting war, only to die in the first days of peace at the hands of an unpredictable mother nature was a tragedy.

On 1 June 1945 control of No 38 Group and its squadrons was transferred from Fighter Command (ADGB had disbanded in October 1944 and Fighter Command reformed) to Transport Command, a far more appropriate arrangement. However, the end was in sight for the group's Stirling squadrons, which had served the RAF's transport requirements so well since early 1944. No 190 Sqn began exchanging its Stirling IVs for Halifax IIIs in May, with the last of its Short aircraft being ferried to Maghaberry, in Northern Ireland, on 26 May to be broken up. At Great Dunmow, No 570 Sqn disbanded on 28 December 1945 following a lifespan of just over two years. No 196 Sqn remained a Stirling unit after the war, however, eventually converting to the long-range unarmed Mk V in January 1946, before eventually disbanding on 16 March that same year. At Rivenhall, No 295 Sqn disbanded on 21 January 1946, while at Shepherds Grove No 299 Sqn began taking on the Mk V in January 1945, operating it concurrently with the Mk IV until the unit disbanded on 15 February 1946. The only one of the six No 38 Group Stirling units to survive for very much longer was No 620 Sqn, whose Stirlings flew trooping flights to Brussels in May-June 1945, before converting to the Halifax A VII in July. However, the stay of execution was short-lived because on 1 September 1946 the unit was disbanded and then immediately renumbered as No 113 Sqn at Aqir, in Palestine, again equipped with Halifaxes.

STIRLING V FREIGHTER

Six RAF squadrons used the Mk V between late 1944 and mid-1946, namely Nos 46, 242, 51, 158, 196 and 299 Sqns. Flying from bases in England, they operated several flights weekly to the Middle East and India, following the civilian passenger routes established before the war by Imperial Airways and BOAC. A pair of Heavy Freight Flights (HFFs) were also formed by the RAF in autumn 1945 to operate a regular cargo service flying from the Middle and Far East back to Britain. Both units were equipped with the Mk V, with No 1588 HFF operating five aircraft from Santa Cruz, in Bombay, and No 1589 HFF flying five more from Cairo West, in Egypt. By early 1946, only No 46 Sqn was left flying the Stirling V on the India route, along with the two Heavy Freight Flights. In July that year No 1588 HFF retired its Mk Vs, having by then become the last active unit in the RAF to fly the Short Stirling.

Displaying the new colour scheme of medium sea grey and green over azure blue, this unidentified Stirling V is seen on an air test in late 1945. Note the propeller spinners used in conjunction with cooling fans fitted under the cowlings to help prevent the engines from overheating when operating in hotter climates

APPENDICES

APPENDIX 1

STIRLING FRONTLINE SQUADRONS

Note – following each squadron number is the mark/s of Stirling flown, the period during which the unit operated the type and from which airfield/s, and the month in which the squadron first operated the Stirling from this location.

No 7 Sqn
Nos 3 and 8 Groups, code – MG
Mks I and III – 8/40 to 8/43
Leeming, Yorkshire – 8/40
Oakington, Cambridgeshire – 10/40

No 15 Sqn
No 3 Group, code – LS
Mks I and III – 4/41 to 12/43
Wyton, Huntingdonshire – 4/41
Bourn, Cambridgeshire – 8/42
Mildenhall, Suffolk – 4/43

No 46 (Uganda) Sqn
No 38 Group, code – XK
Mks IV and V – 2/45 to 5/46
Stoney Cross, Hampshire – 1/45

No 51 Sqn
No 38 Group, code – MH
Mks IV and V – 6/45 to 4/46
Leconfield, Yorkshire – 4/45
Stradishall, Suffolk – 8/45

No 75 (New Zealand) Sqn
No 3 Group, codes – AA and JN ('C' Flight, 10/42 to 8/43)
Mks I and III – 11/42 to 4/44
Newmarket, Suffolk – 11/42
Mepal, Cambridgeshire – 6/43

No 90 Sqn
No 3 Group, codes – WP and XY ('C' Flight)
Mks I and III – 11/42 to 6/44
Bottesford, Leicestershire – 11/42
Ridgewell, Essex – 12/42
West Wickham/Wratting Common, Cambridgeshire – 5/43
Tuddenham, Suffolk – 10/43

No 138 (SD) Sqn
No 3 Group, code – NF
Mk IV – 6/44 to 3/45
Tempsford, Bedfordshire – 3/42

No 148 (SD) Sqn
Middle East Air Force, code – FS
Mk IV – 11-12/44
Brindisi, Italy – 11/44

No 149 (East India) Sqn
No 3 Group, codes – OJ and TK ('C' Flight, 2/43 to 9/44)
Mks I and III – 11/41 to 9/44
Mildenhall, Suffolk – 11/41
Lakenheath, Suffolk – 4/42
Methwold, Suffolk – 5/44

No 158 Sqn
No 38 Group, code – DK
Mks IV and V – 5-12/45
Lisset, Yorkshire – 5/45
Stradishall, Suffolk – 8/45

No 161 (SD) Sqn
No 3 Group, code – MA
Mk IV – 9/44 to 6/45
Tempsford, Bedfordshire – 4/42

No 171 (RCM) Sqn
No 100 Group, code – 6Y
Mk III – 9/44 to 1/45
North Creake, Norfolk – 9/44

No 190 Sqn
Nos 3 and 38 Groups, codes – G5 and L9
Mk IV – 1/44 to 6/45
Leicester East, Leicestershire – 1/44
Fairford, Gloucestershire – 3/44
Great Dunmow, Essex – 10/44

No 196 Sqn
Nos 3 and 38 Groups, codes – ZO and 7T
Mks III, IV and V – 7/43 to 3/46
Witchford, Cambridgeshire – 7/43
Leicester East, Leicestershire – 11/43
Tarrant Rushton, Dorset – 1/44
Keevil, Wiltshire – 3/44
Wethersfield, Essex – 10/44
Shepherds Grove, Suffolk – 1/45

No 199 (BS) Sqn
Nos 3 and 100 Groups, code – EX
Mk III – 7/43 to 3/45
Lakenheath, Suffolk – 6/43
North Creake, Norfolk – 5/44

No 214 (Federated Malay States) Sqn
No 3 Group, code – BU
Mks I and III – 4/42 to 2/44
Stradishall, Suffolk – 1/42
Chedburgh, Suffolk – 10/42
Downham Market, Norfolk – 12/43

No 218 (Gold Coast) Sqn
No 3 Group, code – HA
Mks I and III – 1/42 to 8/44
Marham, Norfolk – 1/42
Downham Market, Norfolk – 7/42
Woolfox Lodge, Rutland – 3/44

No 242 (Canadian) Sqn
No 38 Group, code – KY
Mk IV – 2/45 to 1/46
Stoney Cross, Hampshire – 11/44

No 295 Sqn
No 38 Group, codes – 8E and 8Z
Mk IV – 6/44 to 1/46
Harwell, Oxfordshire – 3/44
Rivenhall, Essex – 10/44

No 299 Sqn
No 38 Group, codes – 5G and X9
Mks IV and V – 1/44 to 2/46
Keevil, Wiltshire – 3/44
Wethersfield, Essex – 10/44
Shepherds Grove, Suffolk – 1/45

No 513 Sqn
No 3 Group, code – CS
Mk III – 9-11/43
Witchford, Cambridgeshire – 9/43

No 570 Sqn
No 38 Group, codes – V8 and E7
Mk IV – 7/44 to 12/45
Harwell, Oxfordshire – 3/44
Rivenhall, Essex – 10/44

No 620 Sqn
Nos 3 and 38 Groups, codes – D4 and QS
Mks I, III and IV – 6/43 to 07/45
Chedburgh, Suffolk – 6/43
Leicester East, Leicestershire – 11/43
Fairford, Gloucestershire – 3/44
Great Dunmow, Essex – 10/44

No 622 Sqn
No 3 Group, code – GI
Mk III – 8/43 to 1/44
Mildenhall, Suffolk – 8/43

No 623 Sqn
No 3 Group, code – IC
Mk III – 8-12/43
Downham Market, Norfolk – 8/43

No 624 (SD) Sqn
Middle East Air Force, codes – none used
Mk IV – 7-9/44
Blida, Italy – 2/44

No 1588 Heavy Freight Flight
No 38 Group, codes – not known
Mk V – 10/45 to 7/46
Melton Mowbray, Leicestershire – 9/45
Drigh Road (Karachi), India – 10/45
Santa Cruz (Bombay), India – 10/45 to 5/46

No 1589 Heavy Freight Flight
No 38 Group, codes – not known
Mk V – 9/45 to 4/46
Melton Mowbray, Leicestershire – 9/45
Cairo West, Egypt – 10/45 to 4/46

APPENDIX 2

STIRLING TRAINING UNITS

Note – * denotes a minor user of the Stirling, in some cases as few as one aircraft.

No 1332 HTCU
Code – YY
Longtown, Cumberland – 9-10/44
Nutts Corner, Northern Ireland – 10/44 to 4/45
Riccall, Yorkshire – 4/45

No 1427 Flt
Codes – not known
Thruxton, Wiltshire – 12/41 to 5/42
Hullavington, Wiltshire – 5-8/42
Marham, Norfolk – 8/42 to 10/43
Stradishall, Suffolk – 10/43 (incorporated into No 1657 HCU)

No 1651 HCU
Codes – BS, QQ and YZ
Wratting Common/West Wickham, Cambridgeshire – 11/43 to 11/44
Woolfox Lodge, Rutland – 11/44 to 1/45

No 1652 HCU*
Codes – GV and JA
Marston Moor, Yorkshire

No 1653 HCU
Codes – H4 and A3
North Luffenham, Rutland – 12/44

No 1654 HCU*
Codes – UG and JF
Wigsley, Nottinghamshire

No 1657 HCU
Codes – AK and XT
Oakington, Cambridgeshire – 10/42
Stradishall, Suffolk – 10/42 to 12/44

No 1659 HCU*
Code – FD
Topcliffe, Yorkshire

No 1660 HCU
Code – TV
Swinderby, Lincolnshire – 11/43 to 2/45

No 1661 HCU
Code – GP
Winthorpe, Nottinghamshire – 11/43 to 2/45

No 1662 HCU*
Codes – KF and PE
Blyton, Lincolnshire

No 1665 HCU
Codes – FO, NY and OG
Woolfox Lodge, Rutland – 6/43 to 1/44
Tilstock, Salop – 1/44 to 3/46

No 1663 HCU*
Codes – OO and SV
Rufforth, Yorkshire

Operational and Refresher Training Unit*
Code – not known
Matching, Essex – 3-10/45
Wethersfield, Essex

Pathfinder Force Navigation Training Unit*
Code – QF
Upwood, Huntingdonshire
Warboys, Cambridgeshire

COLOUR PLATES

1
Stirling I BK611/LS-U of No 15 Sqn, Mildenhall, May 1943

BK611 was delivered to No 15 Sqn on 24 December 1942 and named *Te Kooti* after the famous Maori chief, with nose art painted beneath the pilot's window. An unusual ops tally was recorded on the rear fuselage between the crew door and the serial. The aircraft's pilot, Sgt J O Wilson RAAF, and bomb aimer, Sgt P Arnott, were killed when *Te Kooti* was shot down by flak returning from an operation to Düsseldorf on 26 May 1943, the bomber crashing at Grubbenvorst, in Holland. Five of the crew managed to briefly evade before being captured by the Germans.

2
Stirling I N3637/MG-K of No 7 Sqn, Oakington, early 1941

One of ten Rochester-built Stirling trainers, N3637 was fitted with Hercules II engines and underwent extensive evaluation at A&AEE Boscombe Down from 30 May 1940, prior to being allocated to No 7 Sqn on 21 December that same year. The interesting, early, unofficial paint scheme depicted here has a wavy top line to the Special Night black, with standard dark green/dark earth camouflage. Fuselage codes are in medium sea grey, with dull red serial numbers and a Type A1 roundel. N3637 passed to the Airborne Forces Experimental Establishment on 18 April 1942, before ending up as instructional airframe 3316M on 15 September that year. It was struck off charge on 16 February 1945.

3
Stirling I N3641/MG-D of No 7 Sqn, Leeming, summer 1940

The earliest production Stirlings were fitted with the black-painted domed propeller spinners depicted here. N3641 wears black under-fuselage and under-wing camouflage, with the dark green/dark earth upper scheme extending down to the lower edges of the fuselage. It has Type A1 roundels and medium sea grey fuselage codes and serial, with the rarely seen tall and narrow national marking on the tail fin. This aircraft was one of three from No 7 Sqn that flew the first offensive operation of the war by Stirlings on 10 February 1941 to Rotterdam. The bomber subsequently served with No 26 Conversion Flight (CF) and No 1651 CU until its tailwheel collapsed following a heavy landing at Waterbeach on 18 February 1942 whilst with the latter unit. The Stirling was reclassified as a maintenance training airframe following this incident.

4
Stirling I N6086/LS-F of No 15 Sqn, Wyton, September 1941

One of the best-known Stirlings of the early war years, N6086 joined No 15 Sqn on 15 September 1941. It was a presentation aircraft and bears the MacRobert family coat of arms with the legend *MACROBERT'S REPLY* beneath the cockpit. N6086 is painted in sooty Special Night matt black, with dark green and dark earth uppersurfaces – note the dark green partial overpainting of the windows beneath the cockpit to prevent stray light escaping from the fuselage interior. Roundels are Type A1 with medium sea grey codes and a dark red serial number. N6086 swung on take-off in snow at Peterhead on 8 February 1942 and was seriously damaged, although the bomber was subsequently repaired and saw further service with No 101 CF and No 1651 CU. The Stirling was still serving with the latter unit when, at the start of a night flying exercise on 14 March 1943, the pilot lost control of the bomber after an engine failed on take-off from Waterbeach at 2100 hrs. The aircraft crashed into the nearby village of Oakington, Cambridgeshire, killing three crewmen and injuring four.

5
Stirling I N6103/OJ-E of No 149 Sqn, Lakenheath, 1942

Delivered to No 149 Sqn on 23 November 1941, N6103 was allocated the code letter 'E for Easy' and named *EAST INDIA 1*. Passed to No 1651 CU at Waterbeach on 10 May 1942, the bomber was written off when it crashed during take-off on 2 September that year. N6103 wears Special Night matt black with dark green and dark earth uppersurfaces, medium sea grey fuselage codes, its serial number in dull red and a Type A1 fuselage roundel. The legend *EAST INDIA I* appears to have been hand-painted in white.

6
Stirling I R9257/MG-C of No 7 Sqn, Oakington, February 1943

No 7 Sqn's R9257 'C for Collander' was being flown by Wg Cdr Hamish Mahaddie on a raid to Cologne on 3 February 1943 when it was attacked and badly damaged by a Ju 88 nightfighter and shrapnel from a close flak burst. R9257 was repaired and passed to No 1657 HCU, before returning to operations with No 214 Sqn on 25 May. The Stirling was written off whilst serving with the latter unit on 12 August 1943 when its undercarriage collapsed during take-off from Chedburgh, No 214 Sqn participating in an attack on Turin that night. Note the retrofitted FN 50 mid-upper turret and the H2S radome beneath the rear fuselage.

7
Stirling I W7444/MG-G of No 7 Sqn, Oakington, late 1941

W7444 was an early-build Austin Motors Mk I, with Hercules XI engines and no mid-upper turret, but with beam-firing machine guns. Allocated to No 7 Sqn on 25 September 1941, W7444 was written off just six weeks later after making a heavy landing upon its return to Wyton from operations on 31 October.

8
Stirling I W7459/O of No 1651 HCU, Waterbeach, autumn 1942

Another Austin Motors-built Stirling I, W7459, unlike W7444, had a long and varied career both as a bomber and as a crew trainer. Joining No 149 Sqn on 25 November 1941, W7459 had short spells with No 26 CF, No 218 Sqn, No 214 Sqn, No 214 CF and No 1651 HCU, before eventually being rebuilt by SEBRO, Cambridge, in August 1943 and passed on to No 6 MU in February 1944, its flying days largely over. Note the absence of a unit code, FN 7A mid-upper turret and the tailwheel undercarriage in a permanently fixed down position, with the doors removed, owing to retraction problems.

9
Stirling I W7455/OJ-B of No 149 Sqn, Lakenheath, January 1942

W7455 was allocated to No 149 Sqn at Lakenheath on 9 November 1941. While serving with No 149 CF as OJ-X it suffered a collapsed undercarriage when landing on 20 June 1942, causing the starboard

wing to shear off. Repaired at the SEBRO works, W7455 saw further service with Nos 75 (NZ) and 214 Sqns and No 1657 HCU, before finally succumbing to an Me 410 intruder near Wratting Common on 7 September 1943. Note the condensed style of code lettering in medium sea grey, the Type A1 roundel and FN 7A mid-upper turret.

10
Stirling III BK784/WP-O of No 90 Sqn, Tuddenham, April 1944

Not many Stirlings were blessed with long lives, but No 90 Sqn's BK784 was one of the few exceptions. Joining the squadron on 14 April 1943, it spent just over 12 months at Tuddenham before swinging on take-off and crashing at Chippenham Lodge, in Cambridgeshire, on 23 May 1944. The fuselage codes are dull red, rendered in a condensed lettering style – note how the 'O' has been overpainted on a blacker background, possibly to mask a previous code letter 'P'. A bomb log recording the aircraft's total of 43 operations is painted in yellow on the rear fuselage to the right of the crew door. Note also the Monica aerial below the rear turret.

11
Stirling III EF390/MG-T of No 7 Sqn, Oakington, June 1943

EF390 was allocated to No 7 Sqn during the Battle of the Ruhr on 8 April 1943 and the bomber flew its first operation on 13 May to Bochum. The distinctive nose artwork features the Cockney comedian Tommy Trinder, one of Britain's top entertainers in World War 2, whose catchphrase was 'You lucky people'. EF390 is portrayed in late June 1943 following the completion of its sixth operation. Later transferred to No 214 Sqn, 'T for Tommy Trinder' failed to return from a raid on Turin on 12/13 August 1943. Note the small, squat 'MG' squadron code letters and the thin individual identification letter 'T'.

12
Stirling III EF411/OJ-K of No 149 Sqn, Methwold, summer 1944

No 149 Sqn's EF411 was one of the few high-mission Stirlings. It joined No 15 Sqn on 31 May 1943 before passing to No 149 Sqn on 21 June, where, in the guise of OJ-M, followed by 'K' and then 'Y', the aircraft completed at least 69 operations. After service with No 1653 HCU from 29 August 1944, EF411 was struck off charge on 24 April 1945. Flight engineer Roy Abbott recalled, 'When we first joined No 149 Sqn in July 1944, EF411 had already completed a remarkable 69 ops, including twice over – or perhaps through – the Alps to Turin and twice to Berlin'.

13
Stirling III LF133/HA-A of No 218 Sqn, Woolfox Lodge, June 1944

Flown by Sqn Ldr John Overton, LF133 took part in Operation *Glimmer* on D-Day – part of the elaborate deception plan to make the Germans think the landings were taking place elsewhere in Normandy. The nose artwork depicts a Pierrot (a stock male character in French pantomime), probably multi-coloured, with an indiscernible legend inscribed around the top of the figure. A bomb log recording 42 operations was painted to the left of the Pierrot, its size being somewhat smaller than was usually seen. Roughly painted on the rear fuselage, either side of the crew door, was *32 NOT OUT* and a list of crew names – *G H DENNIS*, *A W H AUBREY* and *J Overton*. The latter individual was the 'A' Flight commander. An ex-No 15 Sqn aircraft, LF133 joined No 218 Sqn on 19 December 1943 and had completed 30 operations by the time it was transferred to No 149 Sqn on 11 August 1944. Passed on to No 1651 HCU on 13 September, the bomber was struck off charge on 24 April 1945.

14
Stirling III LJ525/EX-R of No 199 Sqn, North Creake, summer 1944

LJ525 was built by Shorts at its South Marston Shadow Factory near Swindon, in Wiltshire, joining No 199 Sqn on 30 April 1944. The aircraft was fitted out with Mandrel equipment for the unit's role in electronic jamming with No 100 (BS) Group. 'R for Roger' was adorned with nose artwork in the form of a red flag bearing a white skull and crossbones fluttering from a flagpole, surmounting the legend *JOLLY ROGER* in yellow. Also of note are the pair of 'Window' chutes side by side beneath the Type C1 roundel, the eight-aerial Mandrel array along the fuselage underside and the single pitot tube mast under the nose. Serving exclusively with No 199 Sqn, LJ525 was struck off charge on 31 January 1945.

15
Stirling III MZ260/OJ-C of No 149 Sqn, Lakenheath, summer 1943

MZ260 was part of a batch of five Mk IIIs built by Short and Harland, Belfast, to replace five Stirlings destroyed in the bombing of the company's Rochester factory in 1940. Joining No 149 Sqn on 31 May 1943, MZ260 bore the individual code letters 'S' and then 'C'. The bomber's frontline career lasted less than six months, for on 17 November its pilot overshot Lakenheath on three engines and crashed, the Stirling subsequently being burnt out. Of note is the unusual nose artwork depicting Charlie Chaplin in the satirical 1940 film *The Great Dictator*. Chaplin is seen here holding a bomb under his right arm and twisting a cane in his left hand, and beneath him in a scroll is the legend *THE GREAT DICTATOR*.

16
Stirling IV EF267/5G of No 299 Sqn, Keevil, June 1944

Christened *The Saint*, EF267 joined No 299 Sqn on 22 January 1944 and led a comparatively long life in service with a single unit. It saw action in the early hours of D-Day when Flg Off Den Hardwick dropped a team from 225 Parachute Field Ambulance Royal Army Medical Corps (RAMC) over Normandy at about 0120 hrs near Le Bas de Ranville. A re-supply flight as part of Operation *Tonga* followed later that same day. During the summer months EF267 undertook SD and SOE operations to France, before being committed to Operation *Market Garden* in September – *The Saint* was shot down near Wijchen on 19 September (Arnhem Day 3). The fuselage squadron code 5G has been applied here in dull red, but there is no visible serial or individual code letter.

17
Stirling IV EF309/7T-P of No 196 Sqn, Keevil, summer 1944

EF309 was a Hercules VI-engined Mk III built by Short and Harland, Belfast, and converted into a Mk IV. Joining No 196 Sqn at Keevil on 25 April 1944, and coded 7T-P, it flew on D-Day but was badly damaged in a flying accident that resulted in a belly-landing on 19 July. EF309 was repaired by SEBRO but did not return to operational service again with No 196 Sqn until 11 March 1945. Note the late style additional glazed nose panel with the fuselage-mounted Rebecca aerial behind it, the squadron code '7T' in dull red,

but no visible serial or individual code letter. EF309 was not struck off charge until 5 June 1947.

18
Stirling III EF409/TV-Y of No 1660 HCU, Swinderby, spring 1944

EF409 is an unusually interesting aircraft, having first served with the Bombing Development Unit at Feltwell, in Norfolk, from 23 May 1943, followed by No 214 Sqn from 4 July as BU-H. It was passed on to No 1660 HCU on 11 December 1944, in whose markings the aircraft is portrayed. Of note is the rear portion of the cockpit canopy (which has been overpainted with dark earth, presumably to assist in navigation training), an H2S scanner dome beneath the rear fuselage and Monica tail warning antenna below the rear turret.

19
Stirling IV EF446/8E-O of No 295 Sqn, Rivenhall, spring 1945

EF446 had originally served with No 90 Sqn in 1943 as a Mk III before its conversion into a Mk IV, after which the Stirling passed briefly to No 570 Sqn (8Z-O, 19 July 1944) before joining No 295 Sqn (as 8E-O, on 3 August), where it bore the name *Goofy II* and associated artwork. EF446 flew five successful missions during *Market Garden* between 17 and 23 September 1944, and *Varsity* on 24 March 1945. As previously mentioned, the nose artwork features the Disney character *Goofy* and a nine-bomb log in yellow. Also of note are the yellow propeller spinners and oil coolers denoting an aircraft of 'B' Flight, and the oddly spaced fuselage code letters in dull red. EF446 was also struck off charge on 5 June 1947.

20
Stirling IV LJ566/D4-Y of No 620 Sqn, Great Dunmow, spring 1945

Bearing a white rose of Yorkshire on its nose, 'Y for Yorker' was appropriately named *YORKSHIRE II* and flown from Great Dunmow by Plt Off Derek de Rome and crew. Stirling III LJ566 had joined No 620 Sqn as QS-L on 18 May 1944 following its conversion into a Mk IV, the aircraft being damaged in action during *Market Garden* on 20 September – it was quickly repaired and returned to the unit on 4 October. The operations log in yellow records two glider sorties (*Arnhem* and *Varsity*), 29 SD sorties and two tactical bombing missions (over Germany in February 1945). LJ566 served exclusively with No 620 Sqn.

21
Stirling IV LK292/E7-V of No 570 Sqn, Rivenhall, April 1945

LK292 was first delivered to No 295 Sqn on 30 September 1944 (8Z-V), and it was transferred to No 570 Sqn on 21 December (E7-V). The fuselage codes are dull red, with a small 'v' individual identity letter. There are traces of the No 295 Sqn code '8Z' having been overpainted. The bomb log painted on the nose behind the Rebecca antenna shows what appears to be one enemy aircraft, two bombing sorties (Weeze on 7 February and an ammunition dump south of Xanten on the 26th) and an SOE drop. The main artwork of a witch flying a broomstick that is in turn towing a Horsa while dropping supply canisters would indicate Operation *Varsity* and four SOE supply drops. LK292 was yet another Stirling that was struck off charge on 5 June 1947.

22
Stirling IV LK555/E7-S of No 570 Sqn, Rivenhall, March 1945

Austin Motors-built LK555 was one of 134 Mk IIIs converted into Mk IVs. Joining No 570 Sqn on 31 July 1944, the Stirling was marked 'V8-S' and, not unnaturally, named *'555' State Express* by its groundcrew after the well-known cigarette brand. As the personal aircraft of Sqn Ldr James Stewart, 'B' Flight commander, LK555 flew two sorties to Arnhem on 17 and 18 September 1944, sustaining flak damage on both occasions that required contractor repair. Stewart also flew LK555, with a Horsa in tow, on *Varsity* on 24 March 1945. Note the yellow propeller bosses and the wing commander pennant motif on the nose. LK555 was also struck off charge on 5 June 1947.

23
Stirling V PJ956/J-D of No 51 Sqn, Stradishall, summer 1945

PJ956 joined No 51 Sqn on 31 May 1945 and subsequently undertook long distance freight and trooping flights between Britain and India. As depicted here, the colour scheme adopted for some of the RAF's fleet of Stirling Vs was dark green and medium sea grey uppersurfaces over azure blue undersurfaces. The serial was painted in dull red, but there was no squadron code on the fuselage. On either side of the nose are the capital letters 'J-D' in white on a rectangular black panel, these presumably being the aircraft's individual identification. PJ956 became No 196 Sqn's ZO-C on 14 February 1946, before finally being struck off charge on 18 August 1947.

24
Stirling IV LK119/NF-R of No 138 Sqn, Tempsford, January 1945

Well used Stirling IV LK119 first served with No 138 (SD) Sqn as NF-R from 17 July 1944, before it was transferred to No 161 (SD) Sqn in early 1945 and marked as MA-Y. Note the rudder painted in what appears to be primer green – presumably a replacement part fitted after the original was damaged, and awaiting painting in black. This aircraft is fitted with a late-war glazed nose panel to improve forward vision for the map reader at night on SD operations. A *Nachtjägerstaffel Norwegen* nightfighter intercepted LK119 (flown by Flt Lt Edward Kidd) on mission Bit 14 to southern Norway on the night of 31 March 1945, the Stirling being set on fire and eventually exploding in mid-air over thick forest at Andsmyra, near Hegland in Norway.

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OSPREY PUBLISHING
Bloomsbury Publishing Plc
PO Box 883, Oxford, OX1 9PL, UK
1385 Broadway, 5th Floor, New York, NY 10018, USA
E-mail: info@ospreypublishing.com
www.ospreypublishing.com

OSPREY is a trademark of Osprey Publishing Ltd

First published in Great Britain in 2018

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A catalogue record for this book is available from the British Library.

ISBN: PB 9781472820426; eBook 9781472820440; ePDF 9781472820433; XML 9781472821959

Edited by Tony Holmes
Cover Artwork by Mark Postlethwaite
Aircraft Profiles by Chris Davey
Index by Alan Rutter
Originated by PDQ Digital Media Solutions, UK

Osprey Publishing supports the Woodland Trust, the UK's leading woodland conservation charity. Between 2014 and 2018 our donations are being spent on their Centenary Woods project in the UK.

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Front Cover
On 23 July 1941 six Stirling Is from Nos 7 and 15 Sqns were briefed to attack the German battlecruiser *Scharnhorst* moored at La Pallice, in Brittany. The small force flew south at low level across the English Channel and Bay of Biscay in the early evening, ending in a rated climb to arrive over the target at 14,000 ft. They broke formation and attacked individually with 2000-lb armour-piercing bombs. The enemy defences were quickly roused and heavy flak rose to greet the Stirlings.

By the time they had bombed, Bf 109Fs of 1./JG 2 had also arrived on the scene, forcing pilots to dive down to the deck with all haste to evade the fighters. The three No 7 Sqn Stirlings were chased by two fighters at wave-top height until one was hit and damaged by machine gun fire from Sgt Capel in Stirling N6037/MG-E, flown by Sqn Ldr Reg Cox. Although all three bombers from No 7 Sqn made it home, N6038 of No 15 Sqn was fatally damaged by the enemy fighters. Flg Off Robert Campbell RAAF and his crew perished when the Stirling crashed into the sea (*cover artwork by Mark Postlethwaite*)

Previous Pages
An unidentified Stirling III of No 199 Sqn is refuelled at Lakenheath in the summer of 1943 by a pair of Matador petrol bowsers. A single bowser was normally sufficient for a Stirling's needs, but the fact that two are being used suggests a long-range operation where bomb-load will be sacrificed for maximum fuel-load

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